An Address

ON THE

ACUTE EMERGENCIES OF ABDOMINAL DISEASE.

DELIVERED BEFORE A CONJOINT MEETING OF THE BRIGHTON, EASTBOURNE, TUNBRIDGE WELLS, AND HASTINGS DIVISIONS OF THE BRITISH MEDICAL ASSOCIATION.

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THE subject of my address to you to-day is one which has been chosen for us by your President, and the choice has my warm approval. It may perhaps be thought by some that it is already rather a hackneyed one, that the matter has been so often and so plainly discussed that little or nothing new or helpful remains to be said, and that hardly any further lessons remain to be learnt. If happily that were so, we should, I am sure, hear less of the matter; we should be less often shocked by the untimely loss of a valued life; and the awful death roll of abdominal diseases would be greatly curtailed. It is in medicine as in finance—much poverty and much paper may coexist. It is not the settled problems of medicine about which much is written, it is rather concerning those matters of which many things still need to be made clear. And so far as this question of the acute abdominal catastrophes is concerned, I feel that we are not yet in possession of the real secret of prevention, which is most important of all, of early diagnosis or even of treatment. There is much that has yet to be written for our admonition; there is still a great deal diligently to be learnt.

The most formidable and the most frequent of all the acute emergencies in abdominal disease is concerned with the vermiform appendix. An acute attack of inflammation in that organ, attended by gangrene or followed by perforation, is still the most common cause of a catastrophe, placing the life of the patient in instant jeopardy, and needing for its certain and most speedy relief the immediate intervention of the surgeon. I believe firmly that the serious characters and the terrible fatality of this disease are due very largely, if not exclusively, to the measures which are, with the best intentions but with profoundest unwisdom, directed to the relief of those earliest manifestations of the disease, the full significance of which is hardly yet appreciated.

Of the functions of the appendix we know almost nothing, but that they are of some real significance is probable from the fact that the vascular supply of this little tube is considerable and apparently out of all proportion to its size or manifest importance. The appendix communicates by a valvular opening with the interior of the caecum at a point an inch or more beyond the ileo-caecal valve. At this valve and in the lowest part of the ileum there is a development of the circular muscular fibres of the intestine to a degree which results in the formation of a sphincter muscle. The anatomical arrangement of the pyloric sphincter with the opening of the diverticulum of Vater at the beginning of the small intestine is in some degree reproduced here at the beginning of the large, and, though identity of architecture need not mean similarity of function, it seems reasonable to suppose that the glairy mucoid secretion of the appendix possesses some small digestive power. This function, however, is not to be condemned as trivial and without value because ablation of the appendix involves no digestive losses, for I can recall more than one case of permanent biliary fistula in the old days when every drop of bile was discharged on to the abdominal wall and was lost to the economy. In spite of this, there was no apparent diminution in bodily health or weight or capacity; yet no one was disposed to deny the value of this copious secretion. Because we do not know the use of the appendix and are unable to measure its function, we are not rashly to condemn it as devoid of worth. The position of the appendix at the junction of the small and large intestine is also noteworthy. The small intestine, as we know, is concerned almost exclusively in the digestion and absorption of solid matters from the food. The solid particles which are to be absorbed first by one side and then by the other of the valvulae conniventes, as they are waved to and fro (and so filled and emptied) by peristaltic action, must be kept in suspension. If fluid were taken up in the small intestine there would be no vehicle for the conveyance of the solid matters downwards, and vast and various changes would be needed in the structure of the alimentary canal. It is roughly computed that only 10 per cent. of the fluid taken by the mouth is absorbed before the caecum is reached. In the ascending and transverse colon water is freely taken up, and the faecal residue is stored, till a convenient moment for discharge, in the sigmoid flexure. The fore-gut prepares the food, the mid-gut digests and absorbs it, the hind-gut stores and expels it. The mid-gut extends from the second part of the duodenum to the left end of the transverse colon; and the function is so divided that the small intestine appeases our hunger, the large intestine slakes our thirst. It is known that fluid taken by the mouth speedily excites a wave of peristaltic activity in the lowest ileum. In cases of typhlotomy or of enterostomy, in which the caecum or lowest ileum is opened, it can constantly be observed that the drinking of a little fluid excites a considerable disturbance in this region. I have elsewhere quoted instances to prove how excitable this part of the bowel becomes in response to the swallowing of fluids. If the interior of the caecum and the mouth of the ileo-caecal valve be visible (as in cases of typhlotomy) the increasing activity of the appendix, when water or other fluids are freely given, can be constantly witnessed, and never fails to excite wonder and surprise.

It has been shown by Harvey Cushing, Gilbert and Domenici, and others that the bacteria in the alimentary canal are most numerous and of greatest activity at the junction of the large intestine and the small. Harvey Cushing has also shown that starvation will render sterile all those parts of the intestine which can be caused to empty. On the other hand, it is also well proven that the administration of any aperient medicine not only excites a greater tumult of activity in the small and large intestines, but that secretion is more profuse and the bacterial virulence throughout the canal is considerably augmented. These points also can be corroborated by the examination of the patients upon whom typhlotomy has been performed. In order that we may see the bearing of these facts upon cases of appendicitis, let me recount to you the type history of a patient attacked by this disease. The first symptom in an attack of acute appendicitis is pain. It is always pain, and never sickness or vomiting, nor malaise nor any other symptom whatever. If pain should not be the inaugural symptom in a case of acute abdominal illness, the possibility of the appendix being at fault may definitely be excluded. The pain is absolutely abrupt in onset, it is of varying degree of severity, is often, indeed, usually at first referred to the epigastrium, but after the lapse of a few hours becomes as a rule distinctly worse in the right iliac fossa. The pain may be rapidly followed by a rigor or a sharp elevation in temperature, by vomiting, and frequently by diarrhoea. A slight elevation of temperature occurs without exception in cases of appendicitis in the early stages. The symptoms one and all show a tendency to steady abatement if proper treatment is adopted, if the patient is denied food of all kinds, fluid or solid, and if aperients are strictly and sternly withheld. It seems to be the natural and instinctive desire of the mother, wife, or nurse, in such a condition to administer forthwith a brisk purgative. It is held that something has "disagreed" with the patient, and the offending substance is to be sharply expelled. Castor-oil is the usual remedy in the district where I practise, and it is administered unsparingly. It is no uncommon thing to be told that because the first dose was vomited (a most proper act of rebellion on the part of the stomach) a second, or it may be a third, has been given. A few hours after the aperient is swallowed, frequently in the early hours of the morning, the patient is seized suddenly with a new and more intolerable agony, vomiting occurs, and diarrhoea may be repeated. The abdominal wall becomes rigid, tenderness spreads rapidly across the lower part of the belly, and at last is everywhere present; the pulse rises steadily, and all the signs and symptoms of an acute peritonitis are ushered in without delay. When an

operation is performed, a gangrenous appendix, very probably adherent near its attachment to the caecum, is found, and the peritoneum, already extensively and severely attacked by an acute inflammatory process, replies to the insult by pouring out freely a thin, clear, sterile, and actively bactericidal fluid. It is now about seven years since I was first brought firmly to the conviction that in cases of appendicitis it is the administration of an aperient that is responsible for the acute catastrophe of gangrene and perforation which ends in an acute peritonitis. I do not remember one single case that I have operated upon since in which it was not perfectly clear that the same sequence of events—pain, aperient, perforation—had occurred, and I therefore do not hesitate to say that in almost every instance of acute peritonitis due to the perforation of an appendix it is the treatment directed to the relief of the condition that is the cause of the serious and so often fatal catastrophe. The taking of a purgative medicine is something more than an impressive antecedent—it is, in my judgement, a definite cause. The only possible exceptions occur in those rare cases where direct violence gives rise to a rupture of the appendix or the laceration of the adhesions which enwrap it. In cases of appendicitis, however acute their origin may be, perforation followed by an acute general peritonitis does not seem to occur if no aperient is given and if absolute starvation is adopted from the first. The acute spreading or general peritonitis which occurs in this disease is due to treatment; it is a "therapeutic peritonitis." I am quite prepared to learn that this emphatic statement is received with a shrug of doubt and the tolerant smile of disbelief, but if strict inquiry is made into the intimate details of the history of the cases I cannot think that my experience of this disease will prove to be singular. In appendicitis perforation spells purgation.

The facts that I have already stated show that the indications for treatment at the onset of an acute inflammation in the appendix are absolute starvation, so that all peristaltic activity in the intestine is quieted, and the bacterial virulence of the contents of the bowel greatly reduced. The administration of fluids, which must reach the caecum to be absorbed, and the turbulent action and the high bacterial malignity caused by an aperient are to be avoided. It is in the caecum that bacteria are most prolific and most virulent, and the vast increase in both these qualities which comes from the giving of aperients is especially to be avoided when the appendix, which opens into the caecum, is inflamed.

The theme, then, which I desire to expound in this connexion is that appendicitis is a disease which derives its fiercest activities from the means which are taken to treat it; that acute spreading peritonitis is rarely, if ever, the result of an untreated disease, and that it is the administration of aperients which transforms a simple disease into one of the most serious type. Peritonitis so arising is surely avoidable; the catastrophe is the result of misguided therapeutic activity.

I am coming again by degrees to the conclusion that, in spite of the undoubted advantages which may in many cases accrue from the starvation plan of treatment in acute appendicitis, early or instant operation is always desirable. If the surgeon, when he is called in consultation, hears that a purgative has been given, that alone should, in my judgement, decide him to advise an immediate operation. In children especially there must be no exceptions to this law. An acute attack in a child should always be treated surgically, for the usual signs and symptoms present in an adult are conspicuously lacking here. Twice within the last few weeks, and many times before, I have found on my arrival at the house to which I was summoned that the child I was asked to see was fast asleep, and on examining the abdomen I have found it flaccid and soft, though tender; and this in spite of the fact that at the operation I have found a gangrenous appendix and a widespread peritonitis to which no slightest barrier was set. I make, and admit, no exception to the rule that in acute appendicitis in children urgent and early operation is essential. And by some means or another parents should be made to know that the dosing of children with aperients is an evil, and that they must put a check upon those "philo-cathartic propensities" which seem inseparable from motherhood. I would like to have the power to write in every nursery in the kingdom in large letters, in the most prominent place, the two words, "Avoid aperients." Or perhaps the warning and appeal might be brought home a little more forcibly in an amended edition of nursery rhymes:

> Perforation means purgation
> With the appendix kinked and bad;
> Both food and drink will worry him,
> And aperients drive him mad.

To give aperients to children who have a "stomach-ache" is homicidal, yet so far as I can hear it hardly occurs to a mother or nurse to do anything but this the most disastrous thing of all. While I am speaking of this let me say that the evidence now appears to me conclusive that the "bilious attacks" of children, accompanied by pain of a griping or colicky character, by vomiting, occasionally by diarrhoea, by slight fever, and by headache, and ascribed to the greedy indulgence in "indigestible" foods, are nothing other than mild attacks of inflammation in the appendix. When an attack more severe than all the rest is plainly one needing operative treatment, and the appendix is then removed, nothing is again heard of the recurrent "bilious attacks." In these attacks, however, the appendix undergoes certain changes, for in my experience it is rare to find in operating upon cases of acute peritonitis, with gangrene or perforation of the appendix, that this structure is free from adhesion or obstruction. It is often difficult to deliver the caecum openly into the wound, because adhesion of the base of the appendix about one inch from its attachment to the intestine is so often found. I believe it therefore to be the rule, both in children and in adults, that an acute attack of inflammation of the appendix arises in an organ already diseased by reason of milder antecedent attacks, that perforation and the spreading peritonitis which it causes are almost invariably the result of the administration of aperients, and are accordingly preventable complications. There is here only one safe therapeutic rule, and it is "in all cases of abdominal pain, avoid aperients." It cannot be denied that in some cases of appendicitis in which the administration of an aperient has caused a perforation there is a history of one or many attacks having been relieved by the remedy which on this occasion has led to dire disaster. There is no difficulty in accepting and appreciating this statement. For there is little doubt that the manifestations of appendicitis are often due to obstruction in the lumen of this tube, and an aperient, by exciting an increased activity of muscular contraction, may at one time expel the obstructing material, and so give relief, and at another time, being powerless to overcome the block, may determine a rupture of the wall of the appendix at or behind the point of difficulty. If the general experience of others should coincide in these matters with my own, the conclusion must be drawn that in a very large proportion of the cases, probably I think in all, the serious complications of appendicitis could be prevented by a timely recognition of the disease, by absolute starvation from the first moment of suspicion, and by the strict avoidance of aperient medicines. But this state of perfection is not yet within sight, and we must accordingly be on the watch for those earliest signals which indicate that perforation has occurred and that peritonitis will be swift to develop. The most significant of all indications is indubitably abdominal rigidity. If a case of gangrenous appendicitis is seen at the very earliest stage there will be universal rigidity and immobility of the abdominal wall, but the rigidity is appreciably greater on the side and over the area of the lesion. The earliest case of acute gangrenous appendicitis I have seen was one to which I was summoned by Mr. F. H. Mayo:

P., male, aged 36, on January 7th, 1909, had a sudden attack of slight abdominal pain, which did not abate during the day. On the morning of January 8th he was still suffering from an aching pain and discomfort, and was unable to take his usual breakfast. At 11 o'clock, as the bowels had not acted, he took an aperient, and a little later a dose of Apenta water. During the afternoon he tried to attend to business, but had to return home. At 7 p.m. he took a little hot soup, and at 7.30 was seized with a most agonizing attack of abdominal pain, which prostrated him. His father, hearing him cry out, went upstairs to his room and found him lying on the floor, unable to raise himself. Mr. Mayo saw him within a few minutes, and I was in the house at 8.30 p.m. The patient was in great pain, and was huddled up on a couch, the thighs flexed on the abdomen.

The pulse was 90; the abdomen was everywhere resistant, but was intolerably sensitive over the right side. The abdomen was opened in a nursing home between 9.30 and 10 p.m., and the appendix was found very much swollen and injected in its distal end. The veins in the appendix and in the mesentery were thrombosed. There was an obstruction in the lumen of the appendix about 1 in. from the caecum.

This case showed that the sudden onset of thrombosis of the vessels of the appendix, as of the vessels in the enteric mesentery, is indicated by a sharp attack of prostrating pain, and by the instant setting up of a barrier of firmly contracted muscle, to act both as a protection and a splint.

The sudden onset of acute intolerable pain and the development of tense muscular rigidity in the whole belly wall—these two signs and these alone enable one to say that a serious lesion has occurred in the abdomen which for its most certain relief will need the intervention of the surgeon. A rapid pulse is never present, so far as we know, within the first two or three hours; in all the very early cases I have seen of perforation of any viscus the pulse at first was under 90. The alteration in its character and rapidity are, however, not long delayed, and a steadily augmenting rate, the pulse adding a few beats more hour by hour, is most significant. Nausea, vomiting, and diarrhoea may all be present, but hardly add anything of value to the other features of the disease. A strained and alert anxiety is noticed in the expression, and the breathing is rapid and shallow, and of the thoracic type. The diaphragm is as loth to move as the other muscles with which it forms a wall around the peritoneal cavity. It is, however, never held at first in so firm a contraction, in cases of perforative appendicitis, as in cases of rupture of the stomach or duodenum or gall bladder—lesions which are, of course, in closest proximity to it. This is another example of the fact that muscular rigidity, though universal, is most strongly developed in those parts which are most in need of rest and protection.

The catastrophe which in point of frequency comes next to appendicitis is concerned with the perforation of an ulcer of the stomach or of the duodenum. Of these ulcers there are, as we know, two types, the acute and the chronic. The acute is probably toxaemic in origin, and appears when an infection, generally of an unusually malignant character, is present in one part or another. In the course of typhoid fever, in cases of burns and scalds, in acute bullous pemphigus, in pneumonia, in cases of septic infections following operations or independent of them, and in erysipelas and the like disorders, an acute ulceration of the stomach or of the duodenum, attended by haemorrhage and perhaps proceeding to perforation, may be found. The frequency with which these ulcers are present in all periods of life is considerably under-estimated. For example, Helmholz,[1] by devoting his attention to the subject of duodenal ulcer in children, found in six months as many examples as were contained in the whole literature up to that time. In approximately 50 cases of perforating ulcer that I have had under my care, once only has an acute ulcer been found. In the rest the ulcer has been of the chronic type, and it has for months or years declared its presence by the production and perpetuation of symptoms as to whose significance no doubt ought to have been felt. Not only does the ulcer which at last ruptures into the general peritoneal cavity give clear and sustained evidence of its presence, but in the few days or weeks preceding the final rent it often declares its greater activity and more pressing danger by a considerable exacerbation in the severity of the symptoms.

It is by degrees becoming more generally recognized that chronic ulcers of the stomach and of the duodenum are conditions that can be diagnosed with an approximation to accuracy which, though it leaves much to be desired in the case of the former, is almost exact in the case of the latter. And increasing confidence is being displayed in the view, which some among us have long expounded, that chronic ulcers are in all cases in need of surgical treatment. We may accordingly have reasonable expectations that with earlier and more confident diagnosis and with a speedier resort to operative measures, the final and often long-deferred catastrophe of perforation in a chronic ulcer may be wholly avoided. Whenever a patient who has complained at intervals of indigestion begins to suffer in the present attack more acutely than in an earlier one, the signal of impending perforation is being raised and the clear warning should by no means go unheeded.

At the moment when perforation occurs there is the most agonizing and unendurable pain. Patients will afterwards say that there is no pain so horrible in its torture as this. The least movement seems to add something to its severity, so that a patient will perhaps remain for hours almost without stirring. A medical man upon whom I operated told me that the perforation had occurred while he was crouched on his hands and knees in bed in a position which seemed to relieve his pain. When the rupture of the ulcer took place he could not move to reach the bell, and had to wait motionless until help came to him in the early morning. The tense rigidity of the whole body is in striking contrast to the ceaseless unrest of a patient who is suffering the agony of hepatic colic. In him a constant change of position and of pressure seems in some measure to cause abatement of the pain, or, at least, to be imposed upon the patient in the search for relief that never comes. The abdominal muscles are found to be in a condition of inflexible rigidity, but even here some difference in the various parts of the abdomen can be felt. Over the ulcer the stiffness is of the most obdurate character; one might almost think that a disc of metal replaced the supple muscle. This local increase of a general resistance is most definite and distinct, as a rule, and it affords a decided help not only in the diagnosis of the lesion but in its location. The patient's expression is of one who is terror-struck. The approach of a hand to the abdomen for the purposes of examination is quickly resented, and the most piteous appeal for gentleness is made. The breathing is short, jerky, and shallow, and the patient may indeed cry out that he "cannot breathe." This is due in part no doubt to a spasm of the diaphragm, and in part also, I believe, to that great over-distension of the stomach which is so commonly seen when the abdomen is opened. Though the patient looks generally ill—with pallid face, staring eyes, and sweating brow—the pulse will be found at the first to be hardly altered in frequency or in volume. This is one of the surprises which must not fail to be recognized and remembered. I have often been told by medical men that at the first view of a case they could hardly bring themselves to believe in the occurrence of a perforation, since the pulse was so tranquil and full; and in a case I saw some years ago with Dr. Carlton Oldfield, we deliberately postponed for a few hours any question of operative treatment because the pulse, in rate and volume, was normal. Unhappily, this fact of the unaltered pulse-rate is even now not generally recognized; accordingly delay, which is always serious, may occur. The pulse increases in frequency and depreciates in value very soon, but this is due not to the perforation but to the peritoneal contamination which is the inevitable sequel. No one has any difficulty in recognizing the presence of peritonitis, but our aim must always be to discover at the moment of its occurrence the lesion to which the peritoneal infection is secondary. The symptoms and the signs of the perforation of a hollow viscus are not those of the peritonitis, which make haste to develop.

Among the catastrophes to which attention has been especially directed within recent years, the most remarkable, from many points of view, is that which involves the pancreas in an acute inflammation. For some time after the remarkable paper by Dr. Fitz in 1889, the condition of "acute haemorrhagic pancreatitis" was believed to be of great rarity; but, as in so many other cases, the recent investigations of the surgeon have shown that infrequency of occurrence meant inadequacy of observation. I have operated upon 11 cases of the most acute kind, and 7 patients (the last 6 in succession) have recovered. Of the less acute cases which pass over the initial stage, to be operated upon some days or weeks later, I have had several more.

The onset of pain in acute pancreatitis is usually sudden; a moment before the patient may have been going about in comfort, conducting the ordinary affairs of the day. The absolutely instantaneous onset of the very severe pain is constant, but some of the patients will say that they have been conscious for a few hours, or it may be for a few days, of a sense of discomfort or milder pain in the upper part of the abdomen. About one-third of the total number of observed cases have occurred in patients who

were the subject of recurring flatulent dyspepsia. The patients are generally stout; women are affected slightly more than men, and pregnancy would seem to be a factor of some importance in the causation. The intense pain, then, is sudden in onset, is confined within the abdomen to the upper portion, but passes almost always through to the back; it is agonizing beyond endurance, and is not seldom the cause of fainting or a profound collapse. The face is drawn and white, though the lips are often blue. In many of the cases I have seen there has been a curious leaden colour of the whole face, a slight but unmistakable and I think characteristic cyanosis. Halsted, an early and shrewd investigator, pointed out that lividity of the face and abdominal wall was often a striking feature of these cases. The whole appearance and attitude of the patient suggest that death may be imminent, for the extremities are cold, the heart beats with great rapidity, and the quality of the pulse is poor. Vomiting is an early symptom, is frequently repeated, and may last for days or weeks if the patient should survive so long. The food that has last been taken is the first to be rejected; afterwards all the vomited matters are deeply stained with bile, and pure bile, to all appearance, may be brought up in large quantities. This has suggested in several cases a diagnosis of high obstruction in the jejunum. The patient, as will be grasped from this description, presents the aspect and the symptoms of profound poisoning; and the researches of Gulecke, Egdahl, and others make it appear probable that the toxic substances are produced as a result of the digestion of the pancreas by its own escaped secretions. The abdomen, when examined early, presents the most indomitable rigidity and some fullness in the upper part; the remaining parts may be quite soft and flaccid, yielding readily to the hand, or they may be held with some degree of firmness. The upper portion of the abdomen, the epigastric region especially, never ceases to offer the most incoercible resistance, and, however gentle the examination may be, it is grievously resented and is repelled at the earliest occasion. When the records of published cases of acute pancreatitis are studied, it is seen that the number that have been correctly diagnosed before the operation is extremely small; yet I am confident that the symptoms are of such a character as to make a recognition of their cause a matter of very little difficulty. Briefly to recapitulate, there is, perhaps, in a patient inclined to stoutness a history of antecedent dyspepsia which presents nothing of the characteristic features of duodenal, or indeed of gastric ulceration, but which suggests rather the presence of stones in the gall bladder, and jaundice may have been noticed on one or many occasions. The severe pain comes quite suddenly, is beyond the limits of human fortitude to withstand, is associated with collapse of a profound character, and may cause the patient to swoon. The limbs are cold, the pulse extremely poor, rapid, and thin, or even hardly to be felt and not to be counted. The face may be cyanosed. The upper part of the abdomen is exquisitely tender, and all the muscles there offer the most resolute resistance to any examination. Vomiting is an early and often a conspicuous feature. I do not think a group of symptoms at all similar is to be found in any other form of abdominal calamity. There can be no doubt that, as in the case of perforations of the stomach or duodenum, recovery may follow an attack of acute pancreatitis. Every now and again I find the evidence of this in the abdomen. Very extensive fat necrosis in or upon the pancreas, and in its immediate vicinity, is to be seen, and the pancreas itself may show the remnants of old haemorrhages or contain a cyst, an abscess, or a slough. But these occasional survivals cannot impugn the fact that the safest course here also lies in early operation upon the lines first followed by Dr. Ramsay of Bournemouth. I have recently operated upon a case of acute pancreatitis with Dr. Macklin of Whalley, who had the fortunate opportunity of seeing the patient within a few minutes of the onset of the severe pain. He has kindly written for me the following very graphic account:

The patient was a lady, aged 54, of stout build. When summoned to her, about 3 p.m. on December 7th, 1910, I found the patient verging on collapse, suffering great pain and vomiting freely. The vomit was evidently partially-digested food of which she had partaken very heartily an hour or two before. There was no relief from the vomiting, and the pain was aggravated on assuming the recumbent position, which I induced her to adopt, and almost immediately she had to resume the semirecumbent position in which I had found her. From the first the pulse was very rapid and very faint and the respiration very shallow and sighing. In about a quarter of an hour or so she became almost pulseless, the features very pinched and pale, although there was a suggestion of cyanosis in her appearance. At this point ether was injected hypodermically as she appeared to be about to die. The effect of this was seen very quickly as the pulse began to improve and the colour to return to her face. Soon after I had the patient removed to a couch, but she could not assume the recumbent position without aggravating the pain, which had begun to abate in some degree by this time. In the meantime the vomiting had diminished in frequency and profuseness, although from time to time a small quantity of fluid came up which was mostly water (of which she drank from time to time) stained with bile. Previous to my arrival the patient had had brandy, and some more was given by my instructions during my brief temporary absence to procure the ether. About two hours after the beginning of the attack she was removed home, less than a mile off, by motor and put to bed, which had previously been prepared for her reception. On examining the abdomen there was some considerable distension generally found, but more pronounced in the epigastric region, where there was great tenderness, so much so that the patient could hardly bear the slightest attempt at pressure. The lower part of the abdomen was very flaccid and not at all tender. Pain continued very severe and vomiting continued more or less frequently, but in all very small quantities. The pulse became very irregular and weak after the temporary increase during which she was removed home. The degree of prostration continued so great that I considered it advisable to inject an ounce of brandy per rectum from time to time during the night. About 4 a.m. I left her, as the severity of the symptoms had abated somewhat and the pulse had become more regular and stronger, but I felt it safer to leave a hypodermic with ether and strychnine with the nurse in case of emergency. At 9 on Thursday, the 8th, I found the patient still complaining of much pain and still vomiting at intervals, but otherwise better, wherefore I injected ¼ grain of morphine, which induced after a short time a few hours' sleep. Towards nightfall the patient began to complain of pain again, but more of a dull aching character, which was felt almost entirely to the left side, passing through to the back and shoulders. There was less tenderness on palpation, the abdomen was still tense, but no peritonitis was present; vomiting recurred, similar in character but small in quantity. Towards Friday morning, the 9th, the character of the vomit changed, and it became more abundant in quantity. The vomit consisted of a dark green looking fluid which had a suggestion of "coffee grounds" about it.

At the operation we found widespread fat necrosis especially in the upper part of Morison's pouch on the right side, an enormous enlargement of the pancreas, which was like a phlegmon, and a deep purple engorgement of the gall bladder. Cholecystotomy was performed, and thick black bile drained from the tube for two weeks; two drains of rubber tissue were also passed down to the pancreas. The patient made a most excellent recovery.

So far as my own experience goes, the only other abdominal emergency in which there occurs a profound collapse, with instant lowering of the blood pressure and a general depression of the circulation, is dependent upon the rupture of a tubal gestation. But in over a score of cases of this condition which I have treated I have only once felt any slightest doubt as to the diagnosis, and that was in a case which occurred twelve years ago, at a time when the diagnosis of abdominal diseases could not be made with that confidence and accuracy which we possess to-day. The history in cases of ruptured tubal pregnancy is characteristic. The patient is generally between the ages of 20 and 40, and one menstrual period has been missed. About two or three weeks after the time at which the period should have occurred (sometimes, though rarely, even later than this; in one of my cases over ten weeks after) there is a slight vaginal discharge of blood, and almost at the same time an attack of severe abdominal pain, followed very speedily by pallor, faintness, collapse, air-hunger, sighing restlessness, and all the symptoms of great loss of blood. The pain is acute, but does not even remotely approach in intensity that which is present in the conditions I have already described. The patients, indeed, usually say that they feel as if "something had given way" or as if "something had burst" within the body. The abdomen becomes full, especially in its lower half, where a feeling of tumidity, of "doughiness," is often present; and occasionally one side is more tender than the other. Resistance to the examining hand is not present. The muscles, it is true, may be in some degree tightened, by reason of the sudden increase in the contents of the abdomen, but the stubborn and unchanging muscular rigidity of the other catastrophes is never present

in this. In a few of my cases there has been, as it were, a miniature attack of this kind before the formidable and final seizure has come; such are due, no doubt, to little leakings from a tiny rent, whose edges are presently torn widely asunder to give vent to the profuse bleeding which is taking place. It is, I think, quite impossible for any one now to mistake this clinical picture for any other; the correct diagnosis should always be easily possible.

The crises that develop in the course of cholelithiasis are exceedingly few. In more than a thousand gall-stone cases I have only twice met with a sudden rupture of the gall bladder, only thrice with acute phlegmonous cholecystitis, and only once with acute gangrene with perforation of a common bile duct, which was completely occluded by a large stone. The attacks of hepatic colic, especially those which are due to the temporary impaction of a calculus in the cystic duct, are terrific in severity, but they are not lethal; the agony is almost unendurable while it lasts, and the very extremity of endurance is reached, but the danger to life is quite inconsiderable. The acute cholecystitis which results will almost without exception subside in the course of a few days, so that a deliberate operation can then be undertaken with every circumstance of care. That which chiefly distinguishes a patient suffering the torture of colic, whether hepatic, renal, or intestinal, from one in whom the perforation of a hollow viscus has occurred, is his ceaseless agitation and unrest. The former patient tosses and throws himself about, writhes on the floor or the bed, doubles and twists himself in the constant effort to get ease; the latter at the moment of the catastrophe seems to be struck motionless, and for hours may be hardly able to breathe or stir. However acute the torment of hepatic colic there does not seem to be any rigidity of the abdomen except in the immediate region of the gall bladder. All other parts are supple, and free from any tenderness. A rigor, or a brief shudder, with only a trivial increase of temperature, is seen not infrequently in cases of incipient cholecystitis. When perforation takes place the temperature always falls. In all my hospital experience I have only known one case of hepatic colic sent in as a case of perforated gastric ulcer, and in that case there was also a subacute pancreatitis, for when an operation was undertaken some days later recent evidences of fat necrosis were to be seen.

These are the chief among the various and most serious forms of calamity that occur in connexion with diseases of the abdominal viscera. Of all such it is true to say that they should rarely be allowed to occur. We are now able to recognize with rapidly increasing accuracy the correct interpretation of many symptoms formerly ascribed to "functional" causes. We are quickly being brought to realize that those recurring symptoms formerly supposed to indicate some vice in the action, some change in the secretion, or some disorder in the sensation of an abdominal organ, are in reality due to a perceptible alteration in its structure, and that though medical treatment and continued watchful care may allay for a longer or a shorter time the symptoms which such organic diseases arouse, surgical treatment alone is capable of giving complete and lasting relief. And so it would appear certain that by efficient treatment of the chronic disorder the acute emergency for which it is surely responsible will be forestalled. Yet still the need remains, not only that we should learn to evade the catastrophe whenever possible, but also that we should recognize with fullest accuracy all those manifestations which swiftly develop when once the crisis has occurred. We must free ourselves from the tyranny of the textbook, which still chiefly deals with terminal events, and make certain that we know the essential difference between the signs and symptoms of the primary catastrophe and those of the various complications which finally develop. We must have a conception of abdominal diseases which is radically wrong if we do not realize that the exigencies which spring up so quickly and prove so serious are each one of them a very heavy rebuke both to our power of early diagnosis and to the resources of medical and dietetic treatment.

CONCLUSIONS.

What, then, are the conclusions of the whole matter that we are entitled to draw? They are, I think, as follows:

1. The catastrophes which occur within the abdomen are not, strictly speaking, "acute"; they are, on the contrary, usually the result of the abrupt transition from a quiescent to an acute phase in a disorder of long standing.
2. An acute emergency can, therefore, be prevented by a timely recognition of the value and the significance of the early symptoms, so often ignored or misunderstood, of the chronic malady in which it is the final development.
3. The occurrence of a sudden attack of intolerable agony in the abdomen, associated with tense rigidity of all the abdominal muscles, indicates that there is an acute lesion which needs immediate surgical attention. These two signs, and these alone, are an urgent warrant, and compulsion to us to treat the case at once by operation.
4. A differential diagnosis is generally possible if strict attention be paid to the details of the anamnesis, and if the firm abdominal wall be searched for a tender area of supreme resistance.
5. Shock is not a symptom of perforation, for in the early hours after this disaster has occurred the pulse is very little altered in volume or in rate.
6. In all cases of abdominal pain, especially in children, the use of aperients should be avoided.

REFERENCE.
[1] *Archives of Pediatrics*, September, 1909.

THE CHEMICAL COMPOSITION AND MODE OF FORMATION OF RENAL CALCULI, AND THE METABOLISM OF CALCIUM IN GOUT AND ALLIED CONDITIONS.

ABSTRACT OF A HUNTERIAN LECTURE DELIVERED AT THE ROYAL COLLEGE OF SURGEONS OF ENGLAND, FEBRUARY, 1911.

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AN examination of the literature on the chemical composition of renal calculi, with a view to collation of knowledge as to the comparative frequency of occurrence and amount present of different constituents, reveals an amazing wealth of discordant statement, on which has been built a multitude of theories as to etiology and treatment.

The reason for this condition of affairs appears to be a discarding, in many instances, of all chemical analysis on account of an erroneous notion that the chemical nature of a calculus can be judged from its physical appearances—a process very much resembling that of judging a book by its cover. Secondly, in that minority of cases in which renal calculi have been subjected to chemical examination it has often been deemed sufficient to demonstrate the presence of constituents by qualitative tests. Cases where the complete quantitative chemical composition has been worked out carefully are few.

There is no doubt that a calculus has often been described as consisting of urates simply because it has given the murexide reaction for uric acid, when probably it contained 10 per cent. or less of calcium urate.

In the chapter on urinary lithiasis and renal and ureteral calculi in Osler and McCrae's *System of Medicine*[1] the statement is made that "the physical characteristics of calculi vary greatly, and are somewhat indicative of their constitution. On these, rather than on chemical analyses, have been based many statements as to the nature of renal calculi." Now, as we shall see later, the physical characters give us no clue of any value to the composition of calculi, and hence the many statements as to the chemical composition, based on these physical properties are worthless.

Again, Sir Henry Morris[2] states:

It would seem, from the cases of renal calculi removed during life, which I collected and tabulated from all available British and American sources between 1883 and 1893 inclusive, that other surgeons, like myself, have been unwilling to have the trophies of their surgical operations broken up for chemical

analysis. Hence it happens that out of 203 published cases the chemical nature of the calculus is only mentioned in 77.

It is evident from the chemical statements in the record which follows that even in most of these 77 cases the examination was incomplete, and often of a cursory and qualitative nature.

The quantitative analyses here recorded on a series of 24 cases of calculus were made upon stones removed during life, in most of the cases by Mr. W. Thelwall Thomas of Liverpool, and my thanks are due to him for his generosity in allowing me to break up these "trophies of his surgical operations" and use them for chemical analysis. In each case before the stone was broken up a careful model, reproducing the physical appearances, was made by a skilled modeller.

The results obtained, when contrasted with the usual statements as to the composition of renal calculi, are surprising; so it may be well to point out that the conclusions drawn in this lecture, strictly speaking, refer to this set of calculi only, and may require confirming or modifying when in the future careful and complete quantitative analyses are made of other series of stones. Still there is nothing either in the nature of the cases or of the composition of the water of the wide district from which the cases were drawn which would explain the results, and also the number of cases is not inconsiderable. The cases were drawn from a wide area in Liverpool, West Lancashire, Cheshire, and North Wales, and the drinking waters in these areas are usually soft surface water containing practically no calcium salts.

Before passing to the methods of analysis and results in this series of calculi, I may quote from the literature a few extracts to show present views, and their variations, in regard to the constitution of calculi. Morris[3] writes as follows:

> Uric acid and urate calculi are generally stated to be the *most* frequent of renal calculi. Roberts estimated that they constituted five-sixths of all renal concretions; Legueu, from the statistics of Billroth, Ultzmann, and Carter, says uric acid or its derivatives enter into the composition of 73 per cent. of urinary calculi. Out of 649 calculi in the Hunterian Museum referred to by Beneke, 479—that is, nearly 74 per cent.—had urates or uric acid in their composition.

The many clinical resemblances between the conditions leading to stone and the conditions leading to gout made the clinicians, who had concluded that uric acid and its congeners were the obnoxious products in gout, anxious to conclude that uric acid and the urates were also the offending bodies in renal calculus. On this account the small percentage of urates present in most stones was made to cover the entire contents, and had urates not been entirely lacking in a fair number of stones, it is probable that calcium oxalate as a constituent might never have been discovered.

It is probable that the significance of urates in gout has been much exaggerated; it is quite certain that in renal calculi they are a constituent of but third-rate importance.

The various classifications also of calculi, such as (1) that of chemical composition judged from physical appearances, which leads to quite erroneous results; (2) that of inorganic from organic, which possesses no functional relationships; (3) that into primary and secondary, according to very antique and naïve notions as to origin, which cannot be substantiated—all these are of little service and should be abandoned. It is of little consequence whether a degenerated kidney cell or a micro-organism forms the nidus around which a renal calculus starts to grow, or whether it starts spontaneously, since it is only a certain type of disordered metabolism producing certain insoluble salts of calcium which can keep it growing. In the presence of this disordered metabolism there is gravel in the urine or stone in the kidney; in its absence, and whether kidney infection be present or absent, there can be no gravel and no renal calculi. To classify renal calculi, on the favourite classification of primary and secondary calculi, is accordingly only to produce mystification by interchanging cause and effect. Gravel and renal calculi more often lead to infection of the kidney than primary kidney infection leads to renal calculi; if, indeed, this latter ever occurs. The presence of micro-organisms in renal calculi is the absurdest kind of evidence that the stone arose from renal infection.

A proper classification can only be made on the basis of a careful and complete quantitative analysis of the calculus in each case, and such an analysis may be of service both in elucidating the formation of a stone of a particular composition, and by giving valuable evidence as to after-treatment and advice as to dieting. Nearly all the statements regarding treatment and dieting usually found under the heading "renal lithiasis" are based on the supposition that renal calculi consist of urates, and are directed towards increasing urate solubilities. Thus, one often observes in textbooks of medicine the prescription of a vegetable diet, or one not rich in proteins, along with alkalis and alkaline waters, and then following close upon this reads the statement that such treatment often fails. Little wonder, either, that it should fail, if the two most important and abundant constituents in renal calculi are calcium oxalate and calcium phosphate, the solubilities of both of which are enormously decreased by increased alkalinity, and the former of which, and much the commoner and more abundant of the two, is increased in amount by a vegetable diet. Again, while the patient is prohibited the purin-rich animal proteins containing the progenitors of the obnoxious uric acid, no one suspects the harmless milk puddings or interdicts the ripe Stilton cheese, which becomes much beloved when other animal proteins are cut low. Yet these various forms of milk proteins load up the body with the calcium, which is always the base present, whether the main bulk of the calculus be oxalate or phosphate or urate. The calcium salt of each of these three acids is the most insoluble one which exists, and that is the reason why it is the invariable one present in renal calculi.

Since the indications are different according to whether the calculus consists of oxalates and phosphates on the one hand, or of urates on the other, the analysis of the calculus is a procedure which ought never to be omitted, for recurrence of renal calculi is a frequent event.

The summary which has been quoted from Morris bears a general resemblance to the more recent account in Osler and McCrae,[4] where we find recounted the same preponderance of urate calculi, and the same disposition to connect physical and chemical properties, and to judge of the latter from the former without the tedious processes of analysis.

> By far the most common are the mixed stones of urates and calcium oxalate in varying proportions, and usually in layers, in which one or the other salt predominates sufficiently to reveal on section more or less complete concentric rings.

Statements relating physical properties and chemical compositions are given as follows:

> The "mulberry stone" of calcium oxalate is tuberculated, stained blackish by altered blood, very hard, and of varying size up to about a walnut or over.
>
> The "pebble" of urates is of similar dimensions, oval, of sandy surface, medium hardness, and greyish to reddish from admixture with urinary colouring matter.
>
> The "jackstone" calculus, of the shape its name implies, of brownish to blackish colour and hardest consistency, is another form of oxalate (Fowler).
>
> "Staghorns," or "coral calculi," are of the same materials—that is, urates (Osler)—colour, consistence, and surface appearance, but of size and shape like a mould of the renal pelvis. Fagge says they are "always composed of mixed phosphates."

It would appear as if it might take quite an expert to judge beforehand between a "pebble" of urates and a "jackstone" of oxalates; personally, I should prefer to make a quantitative analysis in such a case. The inconsistency as to the nature of the "staghorn" calculi—"urates (Osler)," "mixed phosphates (Fagge)"—is also somewhat amusing; quite possibly both may be right.

The conflicting evidence in these older statements as to the composition of renal calculi, as well as the remarkable difference between them and the present analyses, may in part be due to the fact that on account of advance in surgical technique stones are now removed much earlier, and directly from kidney or ureter. Many of the earlier chemical examinations were made upon stones found in the kidney after death, or removed from the bladder. In these larger concretions the outer part is often different in character and arises from changes in the urine brought about by the presence and irritation of the stone, and not like the first portion, from a chemical composition of the urine arising from a particular faulty metabolism. From this point of view it is interesting to observe Hilton Fagge,[5]

although he agrees that uric acid ("lithic acid") is the chief ingredient of most calculi, even in these comparatively early days when calculi were not as yet removed from pelvis or ureter by surgical means, had discovered that calcium oxalate forms the most frequent constituent of the central part of the calculus, or nucleus, as it has been termed.

Even when the apparent nucleus really consists of uric acid, the microscope generally shows that the very centre of all has a different composition. It consists either of an aggregation of spheroids or dumb-bells of oxalate of lime, or else of hedgehog crystals or urate of soda.

If we suppose that a concretion starts as calcium oxalate, like nearly all the stones in our present series, the predisposing cause being a faulty metabolism by which the very insoluble calcium oxalate is excreted in larger amount than it can be held in solution in the urine, and if we take it that this growing concretion of calcium oxalate is nowadays usually removed by surgical intervention before it has grown to such a size that it induces secondary changes in the urine and deposition of calcium urate, then we can explain the results obtained in the present series of analyses. If we take it that this calcium oxalate concretion goes on growing, causing irritation and infection, and giving a rough foreign surface in the kidney pelvis, or in the urinary bladder, we may then get a deposit of calcium phosphates or acid urates according to the reaction of the urine, simply because these are the least soluble constituents of the urine, and for reasons in nowise connected with the original formation of the stone. Such a process of reasoning would explain the urate and phosphate formation and deposition of the outer rings of the large renal concretions of former days. Some support is given to this hypothesis by Fagge's statement in speaking of small calcium oxalate stones. He says:

As a cause of haematuria, pyelitis, or renal colic in middle-aged people, such little calculi [of oxalate of lime] are more frequent, in the author's experience, than those of any other kind.

A review of the literature accordingly shows few cases of complete quantitative analyses of renal calculi, and a great want of accord and absence of exact knowledge of the chemical composition of these concretions, and this want of knowledge is reflected in the many widely different notions as to the etiology of renal lithiasis and renal calculi. To the subject of etiology I shall return after describing the methods of analysis employed in the research and the results obtained as to composition of the stones.

METHODS OF ANALYSIS.

Great care must be taken in analysing the calculi to thoroughly separate from each other any oxalates or urates which may be present, as in the final titration with potassium permanganate these are both reduced and increase the amount of permanganate required, so falsifying the results unless separation has been complete. Also the amount of phosphoric acid present must be separately determined.

The usual course of analysis was as follows: The physical characteristics of the calculus were noted, and it was then modelled by a skilled modeller, and afterwards crushed and ground to a fine powder in a mortar. The percentage of moisture was roughly determined after drying for about two hours at 100° C. and the weight again taken. All subsequent analyses were carried out upon, and all results expressed as, percentages of the dried stone. A qualitative analysis was then made; in all cases ammonia, xanthin, cystine, magnesium, and sulphates were tested for carefully and invariably found to be absent. The only base present in appreciable amount was found to be calcium.

As regards quantitative analysis, the total nitrogen was determined in one portion of the stone, and this was reckoned out as uric acid, not on the view that it was really all present as uric acid, but to show conclusively that even when one accepted all the nitrogen as nitrogen present as uric acid still the percentage in the majority of cases was a low one. As mentioned below, a direct determination of uric acid by permanganate titration in sulphuric acid solution was also made upon that portion of the stone left undissolved by hydrochloric acid (1 in 4).

In a separate weighed portion of the calculus powder the phosphoric acid was determined by a modification of Neumann's process, which, briefly, consists in destroying all organic matter by strong nitric acid, precipitating phosphates as ammonio-phospho-molybdate, washing thoroughly from acid, dissolving in standard alkali, driving off ammonia, and titrating back with standard acid.

In a third and larger portion of the calculus powder oxalates and urates were separated by thorough treatment with hydrochloric acid (1 in 4), the uric acid determined by titration with permanganate in the insoluble residue, and the calcium oxalate thrown down along with phosphate, by adding ammonium chloride and ammonia to the acid solution, filtering into a Gooch crucible, washing thoroughly till chloride-free and dissolving in sulphuric acid and titrating with permanganate solution. In some cases the precipitate in the Gooch filter was dried and weighed, and the amount, if any, of calcium phosphate deducted, so giving the amount of calcium oxalate by difference which was then controlled by titration as above described.

The results of the analyses are concisely shown by the following table:

Table of Percentage Composition of the Calculi.

No.	Origin.	Moisture. Per Cent.	Calcium Oxalate. Per Cent.	Calcium Phosphate. Per Cent.	Uric Acid. Direct Method. Per Cent.	Total Nitrogen. Kjeldahl. Per Cent.	Total Nitrogen calculated to Uric Acid. Per Cent.
1	Right kidney	2.0	69.1	1.7	9.9	3.9	11.9
2	Left kidney	17.9	87.3	5.8	4.2	2.6	7.8
3	Left kidney	3.5	86.7	7.4	6.9	2.6	8.0
4	Right kidney	6.8	99.0	none	1.7	2.3	7.0
5	Right kidney	2.7	99.7	none	none	1.3	3.9
6	Right ureter	2.4	85.1	14.5	1.5	0.9	2.8
7	Bladder	6.5	none	none	97.5	—	—
8	Right kidney	13.2	31.5	60.9	6.7	7.0	21.0
9	Right kidney	1.5	79.6	1.9	10.6	4.6	14.0
10	Right kidney	1.9	90.0	8.7	4.0	1.2	3.6
11	Right ureter	1.9	94.4	none	2.5	2.2	6.8
12	Bladder	9.0	none	none	—	32.8	98.5
13	Right kidney	2.5	86.1	6.6	1.8	1.0	3.0
14	Left kidney	2.1	84.7	13.0	3.7	1.3	4.0
15	Left kidney	12.8	51.7	40.4	2.4	1.4	4.2
16	Left kidney	1.7	93.8	none	5.8	0.7	2.2
17	Left ureter	3.9	41.3	47.8	—	1.2	3.8
18	Left ureter	15.7	16.8	69.3	9.6	2.3	6.9
19	Right kidney	2.6	81.0	4.1	11.9	5.2	15.8
20	Ureter	3.9	31.6	63.5	—	1.0	3.1
21	Right kidney	9.3	95.0	none	—	1.2	3.8
22	Right ureter	11.6	32.5	51.7	—	3.6	11.0
23	Right ureter	2.7	90.4	3.8	5.0	—	—
*24	Prostate	—	96.1	none	none	—	—

All percentages, except that of moisture, are calculated in terms of the dried stone.

All the total nitrogen is not present as uric acid; it is shown in the final column calculated as uric acid to furnish a proof, *a fortiori*, that in nearly all these calculi the percentage of uric acid is a low one.

ANALYSIS OF THE TABULAR PERCENTAGES AND DISCUSSION OF THE BEARING OF THE RESULTS.

There are two calculi of the series absolutely different from all the others in chemical composition—namely, Nos. 7 and 12, and it is remarkable that these two alone were from the bladder, all the others coming from the kidney, ureter, or prostatic pouch. The two bladder calculi were almost pure uric acid, containing no trace of calcium, either as oxalate or as phosphate. All the other calculi contained calcium oxalate in large amount, only one less than 30 per cent., and more than two-thirds of

them over 70 per cent., of this insoluble calcium salt. The next most abundant constituent was tricalcic phosphate, also a very insoluble calcium salt; this constituent reached over 50 per cent. in four out of the twenty-two calculi, and was present in quite appreciable amount in six others.

The most remarkable fact, and perhaps most important, is the strikingly low uric acid percentage in all save the two bladder stones; the figures only reach the neighbourhood of 10 per cent. as a maximum in four out of the twenty-two calculi, when the direct titration method is taken for survey, and even the total nitrogen (Kjeldahl) figures show only slightly higher percentages, with one exception (No. 8), where a good deal of the nitrogen was obviously present in other than urate forms.

The contrast in the two bladder stones is so obvious as to raise doubts in our minds as to whether these two calculi ever were formed in the kidney, and it would be most interesting if these were really concretions of vesicular origin.

It is also interesting to note that these two purely uric acid calculi were transparent to x rays, and we find, as was first noticed by Morris, that the ordinary kidney and urethral calculi are opaque, because, like bone, they contain these large percentages of insoluble calcium salts (oxalate and phosphates).

The presence of calcium oxalate as an abundant and frequent constituent of renal calculi—in fact, as the chief constituent of such calculi—opens up a field of most interesting thought as to the metabolism of renal calculus formation. In the first place, the incompletely oxidized oxalate, just like uric acid, points unmistakably to embarrassed oxidation or increased reducing conditions attending their formation.

It might be supposed also that if under pathological conditions there is a tendency to production in the system of oxalic acid, then calcium oxalate being the least soluble oxalate there would be a tendency to formation of this insoluble salt, followed by its precipitation as a calculus around any available nidus of already precipitated or formed material.

The association of the three salts, calcium oxalate, calcium phosphate, and calcium urate, as the three commonest components in this series of calculi, is most interesting, and since two of the acids concerned are associated with incomplete oxidation of proteins and carbohydrates, and the third, namely, phosphoric acid, although a completely oxidized body itself, is always increased as an excretive under conditions of diminished oxidation, the suggestion is awakened that calculi are formed usually in conditions of reduced oxidation associated possibly with disordered calcium nutrition or metabolism.

Since all three of the acids concerned possess very insoluble calcium salts, this circumstance alone might account for the precipitation in the observed form. This is made more probable by the fact that the frequencies and amounts in the foregoing table are such as considerations of relative solubilities would suggest on a basis of physical chemistry, calcium oxalate being the most insoluble salt, then calcium phosphate, and lastly calcium urate.

Even with a normal calcium metabolism, therefore, if oxalic, phosphoric, or uric acids begin to be formed in increased amounts, it may be expected that they will commence to be deposited as calcium salts; at the same time there is little doubt that, in case of deposition of such acids from such dilute solutions as are present in the body fluids, any concentrating of the kation, calcium, will increase the tendency to precipitation and cause an increased rate of deposit, other things being equal. In recommending diet after removal of calculi containing calcium salts it would accordingly seem rational to interdict or diminish foods rich in calcium, such as all those containing milk in its many variants used in cooking—for example, milk itself, milk in tea, coffee, and other drinks, milk biscuits, soups made with milk as a basis, milk puddings, pasties, and bread made up with milk; all the varieties of cheese, and made dishes containing them; again, many vegetable products used in cooking containing calcium salt, especially in the outer layers of seeds, such as the whole meal of wheat and oats. It is also noteworthy that many varieties of wine, even in the better qualities, and practically all inferior quality wines, have undergone the process known as "plastering" to remove undesirable ingredients from the point of view of the palate, and contain calcium salts for this reason in quantities quite detectable by analysis. Malt liquors as sold in this country nearly all contain appreciable quantities of calcium salts, present naturally in the brewing waters from which they are made or added artificially in imitation of such waters, although porters and stouts are not so deleterious as beers and ales in this respect. In addition to the effects of the calcium salts in these varieties of alcoholic drinks, all the heavier wines, as well as alcohol in general, have the defective quality of decreasing rate of oxidation in living tissues, and hence tend towards that incomplete metabolism which gives rise to the oxalates and urates.

As might be expected from the nature of the calculi and concretions, the subjects of both renal calculi and of gout show a preponderance of individuals of sedentary occupation or of inactive habits of body from the physical point of view. The natural disposition and bent of such people is against exercise and accompanying increased oxidation, and affairs are made worse by their disposition which accompanies this set of conditions, and is probably an intrinsic part of the whole, to pile on more fuel instead of lessening the intake, and so to still further check the rate of oxidative processes. It is probable that a great share of the beneficial action of courses of baths abroad, or away from home, arises from plunging such people into a new routine in which they take far more exercise in an interesting form than they are normally accustomed to when at home. The alkaline waters, as also alkaline medication at home, are probably of but little value. These forms of treatment are based on the solubilities of the supposed preponderating uric acid and urates, but the solubilities of the calcium oxalate and calcium phosphate are exactly the reverse, and, if these solubilities give any true index, acid treatment is more indicated in the majority of cases than alkaline. As age increases the alkalinity of the tissue fluids also increases, and this fact may be responsible for the increased depositions of concretions as middle age is reached and passed—this, and the less active habits of life which take possession, with decreased oxidizing powers.

The deposition of insoluble calcium salts under conditions of diminished oxidation in the kidneys as renal calculi is not an isolated and peculiar occurrence, but can be linked up in etiology with the formation of many types of insoluble calcareous deposits in other situations in the body, at first sight apparently quite different in type and origin.

Such deposits, as a rule, occur in situations which are more remote from the blood stream and oxygen and where there is no rapid flow of lymph to prevent the precipitation of the insoluble calcium salts; and, secondly, under pathological conditions of deposit at least, the deposit always contains variable amounts of incompletely oxidized products such as calcium oxalate and calcium urate in addition to calcium phosphate and carbonate.

Taking first of all normal bone formation, we observe that the first calcification of cartilage occurs in a tissue which is extravascular with no blood supply permeating it, and hence farthest removed from oxygen supply. Again, in the bones we notice that, as age progresses, with diminished oxidation processes the percentage of calcium salts goes on increasing, and the deposit keeps becoming denser, until frequently in advanced old age the bones become excessively brittle from the high percentage of calcium salts.

Passing on to more specially pathological deposits, we find that the deposits of gout also are made in parts more remote from the blood stream and oxygen, in the cartilages or joints, that is, in extravascular areas. Usually also in the joints of hands or toes, where the circulation is feebler, and oxygen still less plentifully supplied, combined with that stasis which favours precipitation. Complete modern quantitative analyses of gouty deposits are highly desirable, but I have hitherto been unable to obtain supplies of material; "tophi" and "chalky knuckles" appear to be scarcer than in the days of our forefathers.

The tendency to increase in the calcium content of tuberculous foci upon which the radiographer doubtless depends for his early diagnosis of phthisis, and the hard calcareous deposits found in older and larger healed tuberculous areas,

are examples of the same general law of diminished oxidation at work. The tuberculous area as it grows begins to be cut off from the blood supply and oxygen and reaches the point of breaking down on this account. At this stage calcareous deposition commences for the same reasons which we have seen holding elsewhere.

Finally, in the calcification of arterial walls in old age and arterio-sclerosis, we see a fine example of the same process of diminished oxidation accompanied by calcareous deposition. The calcareous plaques are formed where the arterioles of the coat of the artery have broken down or become partially obliterated, and the supply of oxygen to the tissues has consequently been decreased, oxidation has become embarrassed, and insoluble calcium salts, the congeners of diminished oxidation, have appeared.

Recent analyses of the calcareous plaques from aortae, made by Drs. O. T. Williams and G. F. N. Joseph in my laboratory, have shown that these consist of mixtures of calcium salts of phosphoric, carbonic, oxalic, and stearic acids, as well as of other products of incomplete oxidation, which are now being more fully investigated.

Accordingly, it is seen that the formation of renal calculi has for its basis a condition of diminished oxidation, in which there appear primarily calcium salts of incompletely oxidized bodies, such as calcium oxalate and calcium urate, associated with calcium phosphate. Further, such diminished oxidation, occurring locally or generally, is seen in many pathological conditions, such as calcium salt deposition in bone in old age, in tuberculous lesions, in gout, in arterio-sclerosis, and generally in calcification processes in the body. The tendency towards such deposition increases with age, and is probably accompanied by an increased alkalinity of the body fluids.

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THE EXAMINATION OF SUSPECTED SMALL-POX:

SOME POINTS OF PRACTICAL IMPORTANCE.

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AN attempt is made in this paper to approach the subject of diagnosis from the point of view of the practitioner who may be called upon to examine, and perhaps forthwith to express his opinion on, a suspected case of small-pox. The subject is considered in the light of the experience gained at the receiving station of the Metropolitan Asylums Board during the London epidemic of 1901–2. It is convenient, therefore, to follow the routine examination to which the patient certified to be suffering from small-pox was subjected at the receiving station during that outbreak, and in doing so to try to emphasize those features of the disease which rose into prominence and gradually acquired a position of major importance as experience in differential diagnosis increased.

The method of examination employed at the receiving station was based upon the recognition of the fact that the most constantly present, the most persistent, and the least variable feature of the disease is found in the distribution of the vesicular rash. The high position which the characteristics of the small-pox distribution occupy in differential diagnosis was first recognized, and has lately been* admirably demonstrated, by the author of a recent work on the diagnosis of small-pox. On his teaching, in its broader aspects, the method of examination followed at the receiving station was based.

* *The Diagnosis of Small-pox.* By T. F. Ricketts, M.D., B.Sc.Lond., M.R.C.P., D.P.H. Illustrated from photographs by J. B. Byles, M.B., B.C.Cantab., F.R.C.S.Eng., D.P.H.

A.—SUBJECTIVE CONDITIONS.

(*a*) *The Statements of the Patient.*

A method of investigation which assigns a position of major importance to a feature of the disease so purely objective in its nature must tend to deprive the statements of the patient respecting his symptoms of much of their reputed value. It has a similar effect, although not so extreme, on the general history of the case—namely, the movements of the suspect, the source of his infection, his vaccination record, etc. But, even if one avoid any preconception regarding the relative importance of the various symptoms and signs of the disease, it does not require a long experience in dealing with suspected small-pox to prove how unreliable and not infrequently how misleading are the indications derived from subjective conditions.

Small-pox finds the great majority of its victims among the most ignorant of the population. These people resent compulsory examination. They dread an outbreak of the disease, but they object more strongly to the rigid seclusion of the patient and to the life under tiresome medical supervision which follows its recognition. Such conditions combine to produce an individual whose statements are almost always unreliable and at times wilfully misleading. But the failure to obtain assistance of much value in diagnosis from inquiries about symptoms does not depend altogether on the peculiarities of the patients with whom we have to deal. It is associated also with the variability of the symptoms themselves. Some patients who desire to be accurate are unable to recall the details of an illness which was neither recent nor severe. The onset of present day small-pox does not differ in any material respect from the onset of several other acute febrile diseases. It is usually sudden. Headache, vomiting, or nausea and shivering are frequent. General ill-defined aching is a common feature. But the "backache," the severe lumbar pain, so often mentioned as one of the most important features of the onset, is not always present. When it occurs, this local pain varies greatly not only in position, but also in severity, in different cases. The patient may complain only of a slight discomfort or stiffness in the neck.

In a feverish attack with sudden onset the presence of severe pain in the back does not necessarily point to small-pox, nor is the absence of this local pain inconsistent with the onset of small-pox of the most virulent type.

The following cases may serve to illustrate this point:

1. A boy, aged 8, had a sudden onset of pain in the abdomen, vomiting, and high fever. There was an indefinite history of contact with small-pox. Twenty-four hours after the onset he was complaining of severe headache and pain in the abdomen but not in the back; there was no skin eruption; the abdominal pain seemed to increase, and the patient became delirious and difficult to control; the abdomen was generally tender, but there appeared to be greater resistance to palpation on the right side than on the left. The abdomen was explored but nothing abnormal was found. *Post mortem* a large retro-peritoneal haemorrhage was discovered. The illness was almost certainly due to small-pox of the most virulent type, but during life there were no signs on which a diagnosis could be based.

2 A youth, aged 18, was sent to the receiving station from a common lodging-house, where on the same day a case of small-pox had been discovered. His illness had a sudden onset, with chill, headache, severe pain in the back, and vomiting. There was a patch of herpes on the face but no other skin eruption. His condition was due to lobar pneumonia.

3. An educated man, aged 36, was admitted with a vesicular and pustular eruption on the face, trunk, and extremities. He stated that for two to three days before the rash appeared he had suffered from sickness, headache, and pain in the back. The backache he described as so severe that movement was difficult. The eruption was chicken-pox.

It is hardly necessary to discuss the symptoms of invasion at greater length. None of them is peculiar to small pox. They are important because they indicate the possibility of the presence of an acute infectious disease, and so point to the necessity for complete examination of the skin. The first lesions to appear, as well as the late widely scattered pustules and crusts of a modified small-pox rash, are easily missed if this examination is incomplete.

(*b*) *Source of Infection.*

A history of contact with the disease.

The suspicion aroused when the patient attacked by a feverish illness is known to have been exposed to the

infection of small-pox can be tested only by subsequent developments. If the presumption in favour of small-pox is strong enough to justify removal to hospital, it is a wise precaution to vaccinate the patient before he is brought into an area where undoubted small-pox is concentrated.

In this connexion the following figures are of interest: In the twelve months from August 1st, 1901, to July 31st, 1902, 197 patients who were "contacts" were sent to the receiving station, probably on account of a feverish illness, since they had no rash of any sort. Of these, 55 developed the rash of small-pox while they were under observation. In 142 another disease declared itself, or the symptoms passed off with no further development. It is possible that among the latter there may have been a number of abortive attacks of small-pox in which the rash was entirely suppressed.

A few cases occurred in which it seemed probable that the reported contact of the patient with small-pox was based on an error in diagnosis. For example, a seaman developed feverish symptoms and was detained under observation on account of the report that small-pox had occurred recently among the crew of the steamer from which he had been discharged. When his rash appeared it proved to be chicken-pox.

B.—Objective Conditions.

(a) *General Aspect of the Small-pox Patient.*

The conditions grouped under this heading and observed not infrequently in the patient attacked by small-pox are the expression of the prostrating effect of the onset and primary fever. They have frequently been described. Their intensity varies with the severity of the initial symptoms. The small-pox patient whose invasion period has been severe, and whose pain has abated with the beginning of the eruption, gives one the impression that he has passed through an exhausting struggle. His face and his attitude express weariness and apathy. His voice is apt to be low-toned and monotonous. His mental processes are slow, and control over his movements is apt to be defective. For example, his reply to a question may be appreciably delayed, the question may have to be repeated, and his movements are often retarded, tremulous, and jerky. In the presence of such conditions he may assert that he feels much better since the pain has abated. But he will stagger if he tries to walk, and is apt to fall if not supported. It is not suggested that these conditions are peculiar to small-pox; but they are frequently present in severe cases of this disease, and they have their value as indicators. From their association with the stage of the primary fever towards its end, they are at their highest value when, after a day or two of a severe "influenzal" illness, their presence is accompanied by an eruption of "spots," however discrete the eruption may be.

A few examples of a rare type * of case, in which the presence of the signs of prostration becomes of especial value in diagnosis, occurred during the epidemic. A boy, 6 years of age, a contact, was admitted to the receiving station on the first day of his illness. There were four vesicular lesions on the skin, which was covered by verminous petechiae. One vesicle was situated on the back near the lower angle of the right scapula, another on the right flank, a third on the right side of the abdomen, and the fourth on the right thigh. They were flat, white vesicles, measuring about ¼ inch in their longest diameter. Those on the trunk were oval; the one on the thigh was irregular in outline. They had a superficial resemblance to the lesions of varicella, but they had a stronger pellicle, and they were larger than the usual chicken-pox vesicle. Each vesicle was set on a slightly raised inflammatory base. All appeared to be of the same age. They developed slowly. On the next day there was little change in their appearance, except a decided increase in size and also in prominence, due to further inflammatory induration of the base. Between the second and third day after admission the general small-pox rash began to appear, and the patient was sent on to the hospital. In this case the signs of prostration were not well marked. But in another patient, a boy 12 years of age, admitted on the second day of his illness, the apathetic facies and general appearance of prostration were very evident. In his case the only lesion present on admission was a large flat vesicle with irregular margin and indurated base situated near the centre of the forehead.

Two cases representing the most fulminant and rapidly fatal type of the disease were sent to the receiving station during the epidemic. Extreme pallor, great restlessness, and frequent outcry on account of severe pain were noted in both patients. One, the case of a boy whose pain seemed to be altogether abdominal, has already been mentioned. The other was a woman, 21 years of age. Her child was in hospital with small-pox. She was admitted at the receiving station on the afternoon of December 6th, 1901, with a history of a sudden onset of great severity in the forenoon of the same day. She suffered from continuous nausea and retching, but complained chiefly of a feeling of "weight on the chest," which seemed to interfere seriously with respiration. Her temperature was 101° F. During the night and the following morning her eyes became suffused, cough became very frequent, and the sputum more and more deeply blood-stained. In the evening of December 7th, purpuric spots were noted on the eyelids and on the abdomen and lower part of the back. Subconjunctival haemorrhage also appeared. Death occurred shortly before 6 a.m. on December 8th, less than forty-eight hours after the beginning of her illness. No papules or vesicles were present. The skin remained quite clear until eight or nine hours before death, when haemorrhage began to make its appearance.

In this case the sudden and violent onset after exposure to infection pointed to small-pox. But in cases of this rare type if the history of exposure to infection is wanting, it is hardly likely that the disease will be suspected until its purpuric character reveals itself.

* These cases seem to be examples of inoculated small-pox. In the first the arrangement of the lesions suggests that the inoculation was brought about by vermin.

(b) *Temperature.*

In cases which have been under observation during two or three days of a feverish illness, a fall in temperature associated with the appearance of "spots" on the skin, however few and widely scattered the lesions may be, is an indication of the highest importance.

(c) *The Buccal Mucous Membrane.*

That small-pox vesicles are apt to occur on the mucous membrane of the mouth is a fact of considerable importance in the recognition of the disease. The soft palate is their favourite site, but if numerous they also invade the hard palate, the cheeks, and the tongue. They appear early in the eruptive period, and may precede the beginning of efflorescence on the skin. Their presence at this early stage becomes of the highest importance in diagnosis, because, on account of the rapidity of their evolution, they can be recognized as vesicles at a time when the lesions on the skin, being recent and small, may not present any features which will suggest a diagnosis of small-pox. But the period during which their assistance is available is short. Situated on a mucous membrane these lesions are naturally shallow; vesiculation is rapid; the pellicle is thin, becomes rapidly macerated, and is easily torn. After rupture of the pellicle it may be possible by the aid of strong illumination to see on the mucous membrane of the palate a slight depression with shreds of the torn pellicle adherent to its margin. But very frequently the rupture of the pellicle is followed by the rapid and complete disappearance of the lesion.

As a differential test between chicken-pox and small-pox the presence of vesicles on the mucous membrane has a limited value. They are probably less common in chicken-pox than in small-pox, and the probability in favour of small-pox increases with their number. But individually the lesions present no features by which they may be distinguished.

(d) *The Signs of Previous Vaccination.*

In determining whether a rash is or is not due to small-pox a little help may be obtained from inspection of the patient's vaccination marks, if one is careful not to over-estimate their value as negative evidence in diagnosis. The immunity against invasion by small-pox conferred by vaccination does not remain perfect. If not reinforced it undergoes a gradual but progressive diminution, a process which depends mainly on the combination of two factors: (1) the efficiency of the operation, and (2) the time which has elapsed since it was performed. Without an accurate knowledge of both conditions no assistance in diagnosis can be expected. Patients with signs of previous vaccination may be divided into two groups, according to the condition present at the time they come under examination, namely: (1) those with lesions of vaccinia in their active stage (vesicles or pustules); (2) those in whom the active stage has passed (crusts, ulcers, pigmented scars, and white scars).

1. In cases of the first group the operation is evidently both recent and successful. But this condition is of little value as negative evidence in diagnosis. Small-pox and vaccinia can develop together. The evolution of the vaccinal lesion may have been delayed, or the patient may have been vaccinated after exposure to infection. On the other hand, a successful vaccination performed after the

appearance of the suspected rash may be regarded as excluding small-pox.

For example, a boy, 8 years of age, an in-patient of a general hospital, unvaccinated, was sent to the receiving station on account of a very discrete rash. The lesions were situated on the face and on the right leg near the ankle-joint. They were dome-shaped, yellowish-white vesicles. On an assumption that they were the lesions of small-pox, they were evidently well advanced in the pustular stage. The opinion was formed that the rash was not due to small-pox, the patient was vaccinated, and returned to hospital. Six days afterwards he was sent back to the receiving station as it was considered that the possibility of small-pox was not altogether excluded. On readmission the rash was still present. The lesions had not changed in appearance. They were still yellowish-white dome-shaped vesicles. The vaccination was successful. Its lesions were well-formed normal vesicles, a result which was of value as corroborative evidence that the rash in question was not due to small-pox.

The rare type of case known as Generalized Vaccinia or vaccinal eruptive fever may be mentioned in connexion with cases in the first group. One case in which it was suggested that this condition was the cause of the eruption was admitted during the epidemic.

The patient was a young woman, a domestic servant who had been vaccinated along with the rest of the household because small-pox was active in the district. The vaccinal lesions had reached the eighth or ninth day of development. A very discrete pustular eruption was present on the face, trunk, and extremities. The units of the rash varied very much in size, but with this exception the eruption presented no features inconsistent with a mild and modified small-pox rash, and as the patient came from a district in which small-pox was rife, the certificate seemed to be fully justified.

2. In cases of the second group the *crust* or *ulcer* have no features which are peculiar to a successful vaccination, and therefore can afford no reliable means of judging of the efficiency of the operation. With very few exceptions, the statements of patients about the result of vaccination are quite unreliable, because they do not appreciate what is meant by "successful vaccination."

The relationship which has been shown to exist between fatality in small-pox and number of vaccination cicatrices has no practical value when the possibility of *invasion* in individual cases has to be decided. It does not seem likely that a more accurate standard for diagnostic purposes will be attained by attempts to assess the protective value of the scars of individuals attacked by small-pox, since it will never be possible to ascertain what share secondary infections have had in the production of the scar, and since it is unlikely that similar investigations among those who have been exposed to the infection, but have escaped attack by the disease, will ever be recorded.

The following case is of interest as representative of a type of rash presenting difficulty in diagnosis, and as an illustration of associated conditions in which the result of vaccination *after the appearance of the suspected rash* cannot be expected to afford reliable evidence for or against small-pox:

A girl between 6 and 7 years of age, vaccinated in infancy, was sent to the receiving station on account of a rash, of which the diagnosis lay between chicken-pox and small-pox. The rash was present on the face, trunk, and extremities. There were a few lesions on the forearms and hands, and on the legs and feet. The majority of the lesions had desiccated. A few on the face and extremities were pustular. Two vaccination scars of more than average size were present. The opinion was formed that the rash was chicken-pox. Revaccination at the receiving station was not successful.

(*e*) *The Cutaneous Signs of Small-pox.*

Small-pox is capable of producing three distinct types of eruption:

1. Erythema.
2. Purpura.
3. Vesicle (the pock).

During the period (commonly called the pre-eruptive stage of the disease) between the onset of the illness and the appearance of the first lesions of the vesicular rash the skin may remain quite free from eruption, or the clinical picture may be dominated by the presence of an erythematous or purpuric rash.

1. *Erythema.*—That difficulty is encountered in the identification of this sign of small-pox is evident from the number of varieties of the rash which are described in the textbooks. The small-pox erythema is said to conceal its identity under many disguises—to appear at one time as a scarlatiniform rash, at another time as a morbilliform erythema, and at another as an erysipelatoid eruption. In a recent article on the prodromal rashes of small-pox no fewer than seven subdivisions of the condition are recognized. The making of these minute subdivisions is of doubtful value for the purposes of diagnosis. Even in the most simple classification there exists the very important disadvantage associated with the nomenclature which is employed. To one who is unfamiliar with the disease from the want of opportunity of observing it, the use of such terms as "scarlatiniform," "morbilliform," etc., with their definite connotation, must almost inevitably emphasize a likeness which is superficial or confined to one feature of the condition at the expense of distinctions which are often all-important in diagnosis.

The rash occurs most frequently in patches. In the majority of cases it tends to fade rapidly and leaves no trace. It varies in the intensity of its colouring on different parts of the body. Sometimes it seems to migrate. Patches of colour may appear on the chest soon after the onset of the illness and gradually or rapidly fade, while a similar rash makes its appearance on the extremities. These patches are not urticarial in character. The position which this rash occupies as a differential test for small-pox may, perhaps, be most easily indicated if the following features are taken to represent the type:

1. It has no definite unit, but consists of patches which are irregular in contour and vary much in size.
2. It is haphazard in distribution.
3. It is not a raised rash.
4. It does not affect the face.

This negative method of setting out the characters of the rash may serve to indicate that in a considerable proportion of its examples the erythema is in itself of little assistance in diagnosis, but acquires importance only from being associated with a purpuric or vesicular eruption, present at the time of examination or superimposed on the erythema during a short period of observation.

The exceptional examples may be considered in two groups: (*a*) Cases in which the rash, by assuming more positive features, becomes in itself an indicator of considerable value; (*b*) cases which are apt to be mistaken on account of a resemblance to other more common conditions.

(*a*)—(1) A rare form which the erythema may assume is exceptional in its tendency to symmetry in distribution. Soon after the onset of the disease brilliant, almost vermilion, patches may appear over the extensor surfaces of the larger joints, the knee, the shoulder, and the elbow, affecting both sides of the body, but usually in an unequal manner. Along with these symmetrical patches others of equal brilliance may be seen on the trunk. Such patches may show at one side a margin where the transition from erythema to unaffected skin is very abrupt. In some cases symmetrical patches occur along the inner margin of the feet or along the radial side of the forearm on the dorsal surfaces.

(2) The onset of the most virulent toxic attack may be accompanied by the appearance of a rash occurring not in patches, but as a continuous sheet of erythema. Usually the face is also affected. This rash is remarkable not only for uniformity and evenness of distribution, but also for its colour, which is frequently brilliant. It can hardly be mistaken for scarlet fever, since it is entirely wanting in the characteristic punctation. At its first appearance this universal form of the small-pox erythema is not unlike the blush which may be produced on the hands and arms when they are plunged into hot water.

(*b*) The cases in this group, unlike those mentioned in the preceding paragraphs, cause considerable difficulty in diagnosis on account of the manner in which they mimic more common conditions.

The following case, recently under observation, illustrates very well the difficulty which may be encountered:

A female, aged 18, was admitted to hospital on March 2nd, 1911, under certificate of scarlet fever. The patches of erythema were very distinctly raised. The rash was almost confluent on the forearms and legs, and very discrete on the back and on the front of the chest. Discrete patches were present on the neck, and these extended upwards over the skin of the jaw, and were present on the cheeks. The face, therefore, was affected, but there was only one patch on the forehead, and the circumoral region was free from eruption. There was a history of sickness and headache on the day before admission. Temperature was 99.8° F.

The patient had been labelled scarlet fever probably on

account of the confluent rash on the arms and legs, but there was no evidence anywhere of the characteristic punctate rash. The eruption at first sight had a considerable resemblance to measles, and with a rash so well developed the absence of Koplik's lesions could not be regarded as conclusive negative evidence. There was a slight suffusion of the eyes.

The anomalous character of the rash, which was certainly not the rash of scarlet fever and did not satisfy all the conditions required for measles, led to a closer examination of the condition. In the isolated spot on the forehead there was a small papule; another was found on the cheek near the left side of the nose. Others were found on the arms and back, and one on the right palm. The total number of lesions was under twenty. They were all insignificant, and search had to be made for them. The patient was isolated, and on the following morning the diagnosis was no longer in doubt.

2. *Purpura.*—The poison of small-pox, in common with that of the majority of infections, has the power in some cases of producing extravasation of blood. The condition is dealt with here only as it affects the skin and the more exposed mucous membranes—for example, the mucous membrane of the mouth and the conjunctiva. The severity of the purpuric sign in toxaemia varies within wide limits. There is, for example, the staining, more or less persistent, left not infrequently when an erythema fades. Such staining occurs in some cases of scarlet fever and in many cases of measles. The same condition is seen after some examples of the small-pox erythema. Again, there is the more severe form of purpura, the small, bright red petechiae of the size of a pin's head or smaller, which are also not uncommon as accompaniments of the rash in scarlet fever, in measles, and in some cases of food poisoning. The favourite sites of these petechial lesions are in and about the flexures—for example, in the groin, in the bend of the elbow, and about the armpit. The same condition occurs in some cases of small-pox. Again, the exaggerated tendency to bruising, or to accentuation of the result of slight injuries, seen in diphtheria and in enteric fever, and the still more severe form of purpura in which the lesions are of deep purple colour, of considerable size, and contain an appreciable quantity of blood—the type of lesion to be seen in severe septicaemia and in diseases which, for want of accurate differentiation, are classed as purpuras of different varieties, can all be paralleled in some cases of small-pox; that is to say, the purpuric lesions of small-pox do not differ either in their type or in their arrangement from those found in the other diseases of its class. But this sign of toxaemia is of considerable value in the recognition of the disease; its importance depends altogether on the frequency of its occurrence and on the severity of its manifestations. Small-pox, above all other diseases of its class as we see them in this country, is a purpuric disease. To obtain an estimate of the frequency of the purpuric sign in small-pox, an examination was made (by kind permission of Dr. T. F. Ricketts, Medical Superintendent) of the records of 1,232 consecutive cases of the disease completed in the Metropolitan Asylums Board Hospital during 1901, and it was found that purpuric skin lesions were noted at some time during the attack in 271, or in 22 per cent. A considerable number of these cases first came under observation in the late stages of the attack, at a time when the sign, if it had been present, must have faded completely. Therefore, in regard to this series of cases, 22 per cent. cannot be considered as an overestimate of the frequency of the condition.

Of the severity of the condition in small-pox, the petechial lesions of the flexures afford a good illustration. As they occur in small-pox, they are usually very densely set, and they tend in a marked way to pass beyond the exact line of the flexures. Frequently they extend from the groin upwards over the abdomen and flanks, and from the axilla downwards over its inner and outer walls. A band of scattered petechiae may extend across the abdomen below the umbilicus or across the small of the back.

The value of the purpuric sign in the differentiation of small-pox may, therefore, be stated as follows: Given an onset of a febrile disorder pointing to the presence of an acute infection and associated with purpura, small-pox should be considered as occupying the first position as a possible cause, and one may go further and say that the probability of the presence of small-pox increases according to the severity of the purpuric lesions as regards both their number and their type. Assuming that this is the position, it seems hardly necessary to separate the so-called petechial initial or prodromal rash from the other more severe purpuric lesions of the disease, or still further to accentuate the difficulties of diagnosis by describing a so-called haemorrhagic variety of small-pox as if it were to be classed by itself, the descriptive method so constantly adopted by writers on this disease. One can hardly avoid forming the opinion that some at least of the missed cases of small-pox, and most certainly those rare and virulent examples (by *virulent* meaning of high infective power as well as deadly to the individual) which have the purpuric sign as their outstanding feature, would not escape if these facts were fully recognized. Several missed cases belonging to this type which had been labelled "blood poisoning" came under notice during the epidemic of 1901–2. Each acted as a centre from which infection spread, and from one of them more than twenty patients contracted the disease by direct contact.

3. *The Vesicle or Pock.*—The influence of the high infective power which seems to be possessed by cases of the type just referred to is limited by the rarity of the type, by the complete prostration of the patient, and by the termination, which is almost invariably rapidly fatal. The majority of the population possesses some degree of immunity. Most are susceptible to attack by the disease, but not to death. The febrile disturbance, the pain, and the other more or less severe toxaemic effects of the invasion frequently subside with the appearance of the pocks, and the severity of the later stages of the attack, in the uncomplicated case, depends entirely on the number of the pocks and on the manner of their evolution. Therefore, in many of the cases occurring in a partially protected population, the illness is over with the appearance of the peculiar rash, the patient is able to resume his usual life, and may become an active agent in the spread of infection. The presence of a few "spots" or "pimples" may not cause remark. From one-third to one-half of all cases, a proportion which depends on the prevailing epidemic type, belong to this class. Therefore, there is a very considerable number of cases in which diagnosis must be based on the characteristics of the peculiar rash of small-pox, and on these alone.

In discussing these characteristics one may view the rash from two different standpoints. One may lay stress on the features of the individual lesion, the unit of the rash, or one may consider the whole rash, the multiple rather than the unit, attaching the greater importance to the collective features of the lesions, namely, the very important tendency they have to group themselves on some areas of the skin surface more than on others, and the less important relationship which is gradually established between one group and another as the lesions pass on through the successive stages of their evolution.

The collective features of the lesions have the greater value in diagnosis. The unit of the rash is a gross inflammatory focus, which passes through several stages in the course of its life-history. Appearing first as a macule which very rapidly becomes a papule, the typical lesion advances steadily through vesicular and pustular stages to the formation of a crust, which on separating leaves a scar. *This quality of continuous change inherent in the lesion is of considerable assistance in diagnosis.* It is very useful in many difficult discrete eruptions which may be under observation on suspicion of small-pox. But the lesions are subject to accidental disturbances—for example, to injury by the patient himself, a factor which may have considerable influence on the very discrete rash. Their evolution is influenced by a lowering of the general physical condition of the patient—for example, by old age or previous ill health, and it is affected also by the presence in the patient of a degree of immunity against the disease.

On the other hand, the more important of the collective features of the lesions depend much less closely on the personal factor in observation. They begin to appear with the beginnings of the eruption. They become fully established when efflorescence is completed, and they must remain as unchanging evidence as long as the rash lasts.

I.—The Features of the Lesion or Unit.

It has been pointed out that the pathology of the lesion is essentially the life-history of a vesicle. In this life-history there are two stages: (*a*) *A stage of progression or formation* leading up to full vesicular development, and

passing almost imperceptibly into the second stage: (*b*) *the stage of retrogression*, which begins with the onset of purulent change in the contents of the vesicle, and terminates with the separation of the crust. The peculiar features of this inflammatory process are found:

(1) In its deep-seated origin;
(2) In its intense and localized character; and
(3) In the acuteness of its course.

In the typical lesion clinical evidence of these features begins to appear as soon as the papular element is recognizable. It attains its greatest prominence when vesicle formation becomes apparent. It gradually declines as pustulation advances, until in the end it has almost completely disappeared.

(*a*) *The Stage of Progression or Formation.*

The early macule has no characteristic features, but this stage of the lesion is so transient that usually in practice one can recognize a distinctly papular condition in the lesion which appears on inspection to be a simple macule. It will usually be noted that the papule does not involve the whole macule of which the outer part is the areola. The pain which is frequently associated with the beginning of this process is of considerable importance in diagnosis. It is described by the patient as a pricking sensation, and it may be produced or increased by pressure on the area in which the lesion is growing. It is to be ascribed to the intrusion of the process on the true skin, and being associated with the presence of a papule it indicates a deep-seated, localized, and intense inflammation. This pain is accentuated on parts where the lesion is bound down by the thickness and density of the outer strata of the epidermis. Therefore, in some cases, it is of value in locating lesions which may be present but scarcely visible on the palms and soles. At the same time further evidence of the depth of the lesion and of its localized character may be obtained in passing the finger over it, at first lightly and then more heavily. With light pressure the lesion may be scarcely appreciable, or it is felt as a slight elevation with gradual slope and a considerable area. With firmer pressure it seems to assume a smaller size and to acquire a sharper outline. This evidence also is more easily appreciated where the epidermis is thick and dense, or where the lesion can be pressed against the bone. As growth goes on the greater prominence which the lesion acquires on parts where the skin is of finer texture becomes more and more accentuated. The major part of the growth of the papule is the result of serous exudation. As this exudation goes on the tension of the lesion increases, and by a systematic examination of the rash at this early stage some lesions may be found in which this condition of tension can be demonstrated by means of a small lens. Under the lens the erythematous area in which the lesion is situated may be seen to resolve itself into three zones. The margin of the tiny lesion is marked by a narrow ring of a tint distinctly paler than the area within it, or the much more extensive and irregular area outside it which forms the areola. As the central area increases in diameter it loses its colour, and at last, when the vesicle is quite apparent to the eye, the anaemic marginal ring becomes merged in the translucent pellicle of the lesion. At this stage, as before, the degree of prominence of the typical lesion depends on the character of the outer strata of the epidermis. Where the skin is of finer texture the vesicle stands well out from the surface. It can be grasped, but it cannot be ruptured by pressure, and attempts to rupture it cause considerable pain. The sensation of unyielding solidity imparted by a lesion which appears to be a translucent vesicle is a feature of very considerable importance in differentiation. Where the outer strata are dense the lesion scarcely rises above its surroundings. The vesicle situated, for example, on the palm cannot be grasped, and is much less refractile than the lesion on other parts. It appears as a small, dark, almost black area, in striking contrast to its well-defined marginal ring.

(*b*) *The Stage of Retrogression.*

The formative stage of the vesicle merges almost imperceptibly in the retrogressive stage. With continuous increase of the lesion, both in size and in prominence, its contents gradually become opalescent, opaque white, and yellow when pustulation is completed. Swelling of the surrounding skin and induration of the margin of the lesion accompany this change; therefore the lesion becomes less definitely localized. As it fills out with pus, the outer layers of the epidermis are stretched and thinned and the remaining intercellular connexions are broken down; therefore the sensation of unyielding solidity imparted by the vesicle is lost. The lesion becomes superficial and can be easily ruptured. Its tendency is to rupture, collapse, or dry up and form a crust. Small-pox crusts may be yellow or dark brown; they may be circular or of irregular outline; they may be flat or dome-shaped. In some lesions the margin of the dome-shaped crust is overlapped by the surrounding skin, giving it the appearance of a "jewel in its setting" (Kaposi). None of these features is peculiar to the small-pox crust. The differentiation of the fully-developed pustule and of the crust depends entirely on such evidence as can be obtained that the origin of the process was deep-seated. Where the outer strata of the epidermis are dense, as on palms and soles, the pustule frequently fails to break through. Its contents are partially absorbed, and the remainder, with the thick pellicle, forms the deep-seated crust or "seed" so well known as the last remains of the small-pox rash.

Therefore the latter stages of the lesion are clinically retrogressive. The peculiar features of the process gradually become concealed, and, in the end, the differentiation of the lesion depends almost entirely on its locality.

The conditions which interfere with this process of evolution are important, but they are not in every respect a hindrance to diagnosis.

1. *Accidental injury to the lesion*—for example, by the patient himself—may entirely destroy its characteristic features. The importance which such injuries may assume in a very discrete rash has already been referred to.

2. *The presence in the patient of a degree of protection against the disease.* The clinical effect of partial immunity is twofold. The severity of the rash is lessened

(1) By decrease in the number of its lesions, and
(2) By decrease in the severity of the local inflammatory process.

In regard to diagnosis the latter factor is the more important. It is associated with a shortening of the period of evolution. As a result there is a general decrease in the size of the lesions and also an accentuation of the variation in size which is present even in the unmodified rash. Vesiculation does not involve the whole lesion. The vesicle, pustule, and crust are small and may appear as if set on the top of the papule. From want of evidence throughout the process, its true nature as a deep-seated vesical formation may not be recognized. On the other hand, in most cases some lesions are to be found which conform more closely to type, and in every case the lesions situated in the thickened epidermis of the hands and feet appear to be less profoundly modified than those on other parts of the body. In addition, in many puzzling discrete eruptions, observation for a short period by demonstrating the rapidity with which the lesions hasten through their evolution will satisfactorily differentiate the small-pox rash from many other conditions—for example, from the papular rash sometimes resulting from mosquito bites, from severe acne, from a pustular syphilide, from impetigo, and from some drug rashes.

3. *The lowering of the general physical condition of the patient, for example, by old age or previous ill health.* From the point of view of diagnosis this condition is the most important. Under its influence the lesion develops badly. The period of eruption tends to be prolonged. The early lesion is less definitely localized, and the vesicle, as it grows, tends to become irregular in outline, flat and flaccid, to increase in area, but not much in prominence. Except for its area, there may be nothing which can distinguish it from severe types of the lesion of chicken-pox. One feature of such a lesion, and not the least important, is its tendency to linger in its evolution, a tendency which in some cases lessens the value of the assistance expected from a short period of observation. The *mild*, very discrete rash, found with considerable frequency in the old and infirm, may be overlooked when it is, as it may be, entirely composed of this type of lesion. An interesting series of such cases occurred during the

1901–2 epidemic in one of the large metropolitan infirmaries. This type of lesion occurs also in the *severe* rash of the badly-nourished infant, and in the rash of the adult worn out by disease, by hard living, or by the severity of the invasion period of his attack; but in these cases the nature of the condition is less likely to be missed since it is so frequently associated with very obvious signs of toxaemia.

II.—The Collective Features of the Lesions.

1. *The Tendency the Lesions have to Group Themselves on some Areas of the Skin more than on others.*—It has long been recognized that the lesions of the vesicular rash of small-pox tend to cluster about an area subjected to pressure, or where a local irritant has been applied. The classical illustration of the induction of such an artificial and local increase in the density of the lesions is the effect produced by the mustard plaster, applied, it may be, for the pain of the invasion period.

Other illustrations may be given, such as the increased incidence of the rash on the buttocks and upper parts of the thighs in the neglected baby, the marking out by the lesions of the line of pressure of a garter, or the line of a scratch, their tendency to cluster round sores caused by vermin, round recent vaccination lesions, round the nipple of the nursing mother, especially if a fissure is present, and so on.

It has also long been recognized that in the great majority of small-pox eruptions the evident natural tendency of the lesions is to prefer the skin of the face and extremities to that of the trunk; that on the trunk they favour the back more than the front, and the front of the chest more than the abdomen; and also that they tend to avoid the lower parts of the abdominal wall, and especially the flexures of the groins, the site of election of the petechial lesions. These natural distinctions in distribution strike the eye at once in many severe discrete or semiconfluent eruptions. They are seen to the greatest perfection in this type of rash occurring in the unvaccinated child.

Dr. T. F. Ricketts has shown that a common factor is concerned in the production of all these variations in the density of the lesions, not only of the artificial variations induced by the mustard plaster, the garter, etc., but also of the seemingly natural variation in grouping so easily recognized in many of the more severe small-pox eruptions. This common factor is exposure to irritation. He shows that its influence is at work in controlling the disposition of the rash over every part of the skin surface. He has demonstrated not only that the presence of this factor determines a greater incidence of the rash on the part of the skin surface so exposed, relative to other parts, but also that its absence—that is, freedom from irritation or protection against irritation—determines a slighter incidence of the rash on the part so protected relative to other parts. The latter effect can be shown by direct experiment.

The term "irritation" as applied to this factor must be interpreted in a wide manner. As Ricketts says: "The operative causes are manifold, but the most potent factors are exposure to air and friction with clothing, and to their efficacy every case of small-pox is a testimonial."

The working of this general law is easily seen in the seemingly natural variations in the incidence of the lesions, which have been so long recognized. The face, so constantly exposed to the weather, never escapes from eruption, and almost without exception suffers more severely than other parts. The hands also, from continuous exposure and constant use, almost never escape. The feet, exposed to friction in walking and having a range of movement a little less free than the hands, are almost always invaded, but a little less constantly, and on an average less severely than the hands. The back, being liable to considerable friction from the clothing, shows a denser crop of lesions than the front of the trunk, where the friction is less, and the flexure of the groin and the walls of the armpit, the parts of the skin surface where protection from exposure and friction is most complete, are very frequently avoided by the vesicular rash. It is to be noted that the same principles apply in considering the details of the distribution of the lesions. For example, the more prominent parts of any region—for instance, of the face—are prone, other things being equal, to be more severely affected than the less prominent parts or the hollows.

The application of the test of the small-pox distribution to a suspected rash therefore implies a search to discover the working of this law, and it is essential to its value as a differential test to assume that the theoretical conditions which determine the site of the lesion are not influenced by any degree of immunity against the disease. Let me illustrate shortly, from the experience of the 1901–2 epidemic, some of the difficulties which seem to arise in the differentiation of small-pox, and how they are overcome by the application of this test.

(*a*) *Severe Eruptions.*

I have pointed out that the severe discrete or semiconfluent small-pox eruption in which the gross inequalities in the distribution of the rash are very apparent is not usually missed. But a mistake in the other direction—the certification of severe non-small-pox eruptions composed of units more or less closely simulating the small-pox lesion—is not infrequent. Difficulty in these cases seems to arise on account of the severity which the eruption may assume on the face, on the trunk, and even on the upper parts of the extremities, and the error is due to want of appreciation of the fact that the forearms and hands and the legs and feet, if not entirely devoid of rash, as often happens, are at least comparatively free from the eruption. The great majority of the cases of chicken-pox and of the syphilitic eruptions certified as small-pox belong to this group.

In a similar way the great majority of the severe measles eruptions and other erythemata, which are not infrequently mistaken for small-pox on account of the papular condition of the rash, may be excluded. Almost without exception, these rashes are almost confluent on the face, trunk, and upper parts of the extremities, and thin out on the forearms and hands and on the legs and feet.

(*b*) *Mild Discrete Eruptions.*

In the great majority of mild discrete small-pox eruptions the working of the general law is not less evident than in the severe discrete and semiconfluent attacks. If any distinction can be made, the advantage seems to lie usually on the side of the more discrete eruption. The gross inequalities in density seem to become more emphasized the more discrete the rash. The only reason for considering mild discrete eruptions under a separate heading is that in a minority of small-pox cases of this type the complementary factor of freedom from irritation or protection against irritation acquires considerable importance in its effect on the distribution. The distinction between freedom from irritation and protection against irritation is rather one of degree than of actual difference, but it is convenient for purposes of illustration. The former is the result of the patient's occupation and station in life. For example, the costermonger's feet may be found to be more severely affected than his hands, and the hands of the manual labourer will attract the lesions to a greater degree than the hands of the costermonger, and to a still greater degree than the hands of the shopwalker. But if each is living his usual life previous to the attack of small-pox, the face will carry its usual proportion of eruption, and the general disturbance in the gross inequalities of the distribution will rarely cause much difficulty. On the other hand, if the patient previous to his attack has been living a life in which he is protected from irritation, this general disturbance may be considerable. This happens most conspicuously in the chronic invalid, especially if he has been bedridden for some time. It is a frequent feature of the rash of the old and infirm, and in these cases it may be sufficiently powerful to mask the typical gross inequalities in the density of the lesions. A very scanty eruption is the rule in cases of this type. But the face very rarely escapes, although the hands and the feet are occasionally free from eruption. The most remarkable series of cases admitted during the 1901–2 epidemic belonged to this class. They were female inmates of a large infirmary, and several had for years been living the infirmary life. In the majority lesions were present on the hands and feet as well as on the face. But in a few the total number of lesions was less than twenty;

the feet and hands were almost or quite free, and the trunk carried the majority of the lesions. In some of the latter cases it was easily noted that the lesions on the trunk were grouped at the waist, following the line of pressure of the band of the dress.

2. One or two points of minor importance may be noted among the collective features of the lesions.

Eruption begins at the end of the second or on the third day of the illness. It is probable that the same condition which determines the relative density of the rash when efflorescence is completed also determines the part of the skin surface on which the lesions will first appear. In the majority of cases this part will naturally be the face, followed by the distal parts of the forearms and the hands. But definite local irritation may be sufficient to interfere with this usual sequence. For example, a washerwoman admitted as a contact developed a rash which had its densest setting on the arms and hands, and it was on these parts that the first lesions were seen.

In practice an opportunity of observing the beginnings of the eruption is not frequent. The eruptive period is not usually prolonged, and within a few hours of the appearance of the first lesions others will be found on every region of the skin. No assistance in diagnosis can be expected from attempts to discover a sequence in the invasion of the various regions if the eruption is well advanced or completed. But the appearance of lesions on the extremities as well as on the face, and particularly the invasion of the hands or feet, very soon after the beginning of the eruption, is an observation of the highest importance in the differentiation of small-pox.

As evolution progresses the lesions which were the first to appear will naturally maintain their priority. In the severe, unmodified eruption the natural sequence in the invasion of regions is continued throughout the evolution. At any time it will be seen that the lesions on the face are most advanced. Those on the trunk and upper parts of the extremities are usually next in order, followed by the lesions on the forearms and hands, and then by those on the legs and feet. But this sequence can at best only apply to the majority of the lesions on any region. It is easily observed in the severe, unmodified eruption, on account of the enormous mass of the lesions and of the regularity and completeness of the stages of their evolution. In the discrete and modified rash efflorescence is more rapidly completed, and priority of one region over another in invasion or during evolution may not be evident. That is to say, in the cases in which difficulty in diagnosis is apt to arise, this feature of the typical eruption may not be available for differentiation.

Reference has already been made to the way in which the persistence of the lesion is influenced by the texture of the epidermis at its site. The importance of this condition in the examination of "contacts" and "suspects" is obvious.

3. In conclusion, a few examples may be given from cases sent to the receiving station during the epidemic, to illustrate the importance of the assistance afforded in the differentiation of the disease by the presence of more than one of the three types of skin eruption at the time of examination, or as a result of subsequent development during a short period of observation.

1. A girl, 11 years old, vaccinated in infancy, whose father, brother, and sister were in hospital with small-pox, developed a patchy erythema on the day before her admission. On admission, her temperature was 98.6° and pulse 96. An erythematous rash, consisting of patches of varying size, of irregular shape, and scarcely raised above the surrounding unaffected skin, was present on the trunk and extremities. The colour of the patches varied considerably. It was a bright scarlet on the buttocks, thighs, legs, and upper arms, and a dull pink on trunk and forearms. Next day most of it had faded, leaving no trace, but a few fresh patches had appeared on the upper part of the back. On the same day one small papule, which rapidly crusted, was noted on the right forearm.

2. A man admitted with a history of three days' illness had an erythematous rash consisting of a few large and brilliant patches of irregular shape and varying size, but with well-defined margin, situated on the trunk and on both knees. Within one of the areas on the trunk there was a dark, almost black, papular lesion surrounded by a purpuric areola.

3. A hotel waiter had the history of a very sudden and severe onset in the early morning of the day of his admission. On admission, in the forenoon, a brilliant erythematous rash covered the whole body. It was evenly spread over every part, and everywhere it faded completely on pressure. Towards evening it was noted that the rash was losing in brightness; it became dusky. In the groins and on the adjacent abdominal wall it no longer faded completely, but definite small red petechiae remained when pressure was applied. Next morning these lesions had greatly increased in number and larger, deep purple purpuric lesions were scattered over the trunk and face.

4. Another man was admitted with an erythema of very similar characters to the last case. During three days' observation the rash gradually faded, leaving no staining. No purpuric lesions and no vesicular rash developed.

5. A man admitted on the second day of his illness had a rash, which on first sight appeared to be a brilliant erythema. It affected the groins, the adjacent abdominal wall, the walls of the armpits, and, to a less extent, the flanks. It was almost vermilion in colour. On close examination it was seen to be made up of small, very closely set petechiae. Next morning the rash had passed further on to the abdominal wall and over the walls of the axillae. The flanks were also more thickly covered, and petechiae were present on the back and on the forearms. On the following morning—fourth day of illness—a dense crop of papules was present on the face, the small petechial rash had faded to a red-brown colour, and larger deep purple purpuric lesions were scattered over the area in the groins, abdomen, and flanks, which the petechial rash had occupied. The patient was sent to the hospital. He died on the tenth day of his illness.

In cases of this virulent type, which have as their outstanding feature the early and rapid development of a severe purpura, the patient may die before the vesicular rash has had time to appear. More frequently life is prolonged sufficiently to allow this rash to pass through the earlier stages of its evolution. In the latter cases the further development of the clinical picture depends on the severity of the toxaemic manifestation.

Purpuric lesions in increasing severity may continue to be the predominant feature of the case, while here and there on the trunk and extremities there may be found a few vesicular lesions of the flat, badly-developing type, which has been referred to in a previous paragraph. Frequently haemorrhage occurs below, around, or into these isolated vesicles. In such cases it seems as if the widespread and excessive purpura replaced the greater part of the vesicular rash. In other cases the purpuric manifestation may partially subside, while the skin of the face, of the hands, and forearms, and, to a less extent, of the legs and feet, becomes swollen. On the forehead it is felt to be thickened and less freely movable than is normal. This change is due to the rise of a very densely-set vesicular rash, in which the units are "so closely crowded the one against the other" (Kaposi), that individual lesions cannot be distinguished on the face and can hardly be separated on the hands and arms. In these cases the skin of palms and soles is tense and may be very tender. As its evolution advances, the vesicular rash gradually assumes a more and more conspicuous position, and, if life is further prolonged, confluent vesiculation occurs, resulting in the formation on face, trunk, and extremities of large flat blebs, which may be torn during the patient's restless delirium. In the end there may be seen all over the body large areas of raw surface exuding blood-stained serum, interspersed with patches of unbroken opaque white pellicle and large and small purpuric lesions.

6. A man who had been admitted to a fever hospital on certificate of scarlet fever was sent to the receiving station for observation. He had a petechial rash in the groins and on the adjacent parts of the abdominal wall. Petechiae were present on the flanks and on the walls of the armpits. The majority of the lesions were bright red points, but scattered over the area there were a few of larger size and deep purple colour. During three days' observation there was no development towards small-pox. A case with very similar features occurred later in the epidemic, and the history of both suggested that the condition was due to food poisoning.

The persistence of the staining left by a petechial rash in the groins and armpits is at times of considerable assistance in difficult discrete pustular or crusted eruptions.

7. In a girl, 5 years of age, a contact, there were present on admission several large circular purpuric lesions situated on the trunk and thighs. In colour they were deep purple or almost black and varied from one-fourth to one-eighth of an inch in diameter. The vesicular rash began to appear in the evening of the day of admission.

8. A homeless and destitute man had, on admission, a discrete vesicular rash. The lesions generally varied much in size and were of the badly-developing type. This condition was noticed particularly on the legs, where each vesicle was surrounded by a narrow bright red purpuric ring. No other purpuric lesions were present.

This accidental purpuric condition is seen in the vagrant class, in the debilitated, and in those who have not been confined to bed during the earlier stages of the disease. If limited to the legs and feet it is not necessarily of serious significance. In similar circumstances it occurs occasionally on the lower extremities in varicella.

I am indebted to Dr. W. McConnel Wanklyn for much kind assistance and for permission to quote several of the cases referred to throughout the paper.

A Lecture
ON
RENOGRAPHY:
OR,
A STUDY OF THE ABNORMAL MOVEMENTS OF THE LIVING KIDNEY, AND A HINT OF ITS BEARING AND INFLUENCE UPON RENAL SURGERY.

BY

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[*With Special Plate.*]

GENTLEMEN,—Let us admit that the unduly mobile kidney may be a cause of renal change, bodily suffering, and even mental distress; let us frankly confess that our treatment of it is sometimes unsatisfactory, and our operative interference not always successful. It follows, then, that our knowledge of the defect is insufficient, and the forces we employ to remedy it are often unwisely wielded.

I submit that the hiatus in our knowledge may, to some extent, be filled by employing more scientific methods of studying its various forms, and especially of gauging the direction in which the organ moves during exaggerated respiratory effort—a phase in its life-history which has, I believe, been overlooked by clinicians and operating surgeons.

A few years ago we were quite content to diagnose a kidney as being unduly mobile if we could feel it beneath the costal arch and press it back again into its bed. This method was rough, but amply sufficient, I admit, to detect one form of over-mobile kidney — the "dropped" variety. But this is only one form, and incidentally I may characterize it as being the least dangerous, the least painful, and the one least necessary to operate on. But the bimanual examination is powerless to detect, and therefore to diagnose, the more dangerous and the more painful variety, that in which axial rotation of the organ bends the pelvo-ureteric junction and produces dilatation of the renal pelvis (the hollowed kidney).

I admit we recognized such rotations could occur on clinical grounds, because we spoke in general terms of "torsion of the kidney" and "cinder-sifting kidneys" (Morris), but we could not demonstrate it in a way that would disarm acute criticism. We are able to effect this now.

In my first lecture on the hollowing of the kidney[1] I chanced to mention that I had been using for eighteen months an accurate method of judging the length of the excursion of the over-mobile kidney, the direction of its movement, and of its axial rotation if this existed.

I understand that you would like me to demonstrate the method, and I do so willingly, as I have not seen it used or heard it advised, and, as circumstances have not permitted me to work in the radiographic department here, you are unfamiliar with the matter. My study has been carried on with the expert technical assistance of Mr. Coldwell in his West End laboratory. My work has considerably altered my conceptions of movable kidney, and it will alter yours as well as interest you. It will refurbish for you a very threadbare subject, and give you scientific reasons for rebutting the diagnosis of "hysterical" pain, and for advising or declining operation in cases in which a movable kidney in the female is the subject of discussion. But it may do more. It may open up for you, as it has for me, a far wider and more fruitful field; it may influence your clinical acumen, your prognosis, and even your operative technique.

The method is simplicity itself. It consists in utilizing respiratory efforts and posture during radiography. To render the matter clearer I must ask your attention to one point.

The Shadow Cast by So-called "Dense" Kidneys.

Occasionally you will see in your radiographs the shadow of the outline of a kidney in the ileo-costal space, and the opinion will be expressed by the radiographer that the kidney is unusually "dense."

I was much exercised in 1900 about these "dense" kidneys. I had a number of kidneys affected with chronic and acute nephritis removed in our *post-mortem* room and *x* rayed; I could not detect any difference between the depth of the shadow cast by the diseased organs and that cast, under similar circumstances, by normal kidneys. It may well be that my technique was faulty; improvement in the art can easily rectify that failure. But I soon learnt that all kidneys in which the true capsule was thickened cast shadows like "dense kidneys." I had previously learnt that no truly over-mobile kidney existed which did not have a thickened true capsule. I do not now concern myself with the reason for this, I merely state it as a fact. I commenced, therefore, studying "dense" kidneys in the living by utilizing movable kidneys; I selected females as being the more prone to this complaint and the easier sex to radiograph. At first I forced the movable kidney from under the ribs and held it down with my fingers while it was being *x* rayed. This failed, because the shadow of the kidney area blended with that cast by the iliac bone and spine. Special steel clips and other contrivances failed for similar reasons. I now utilized forced inspiration, then forced expiration, and, finally, a combination of both with posture, and the results are most striking, not only as bearing on the detection and study of the over-movable kidney, not only in aiding in the detection and elucidation of false shadows, but in indicating the technique of operative procedure.

DESCRIPTION OF SPECIAL PLATE.

Fig. 1.—Radiograph of the outline of a movable kidney in full expiration (Arrow 1).

Fig. 2.—The same under full inspiration (Arrow 2).

Fig. 3.—Composite tracing of both figures showing descent on full inspiration.

Fig. 4.—Radiograph of the outline of movable kidney with a stone in the pelvis under full expiration (Arrow 1).

Fig. 5.—Same under full inspiration (Arrow 2).

Fig. 6.—Composite tracing of both figures showing descent on full inspiration. Note change in shape of stone.

Fig. 7.—Radiograph of stone in the upper ureter of a movable kidney under full expiration (Arrow 1).

Fig. 8.—Same under full inspiration (Arrow 2).

Fig. 9.—Composite tracing of both figures showing the descent of the ureter with the stone in it.

A Graphic Record of the Downward Movements of the Over-mobile Kidney.

We can now approach the first question, How can we accurately detect and measure the amount of the downward excursion of the over-mobile kidney?

Many of you have seen me pin on to the board in the operating theatre a sketch on paper of the exact size and shape of the stones I was about to remove from a kidney, and, after the operation, you have verified the accuracy of the sketch by placing the stones on the paper. I have always explained that the sketch was made by placing tracing paper on the radiographic plate, by outlining the shadow of the stone exactly, and then, in order to allow for the increased size caused by the spread of the rays, by reducing the contour of the shadow by a millimeter.

I utilize the same method, slightly modified, for movable kidney, because the outline of the organ is well marked in favourable cases by its thickened capsule. Three plates are taken without the body being moved in the slightest degree, or the axis of the lamp altered in any way. For the first, the patient is supine. After breathing oxygen and air for a minute or so, the air is fully expelled from the chest, and the larynx closed. Then—with the diaphragm at its highest point and the liver and kidney at their highest level and fixed—the *x* rays are switched on. Generally the patient can keep rigidly in this expiratory condition for ten seconds, which is quite long enough to take the radiograph. The plate is labelled "*Expired supine.*"

TO ILLUSTRATE MR. HURRY FENWICK'S LECTURE ON RENOGRAPHY.

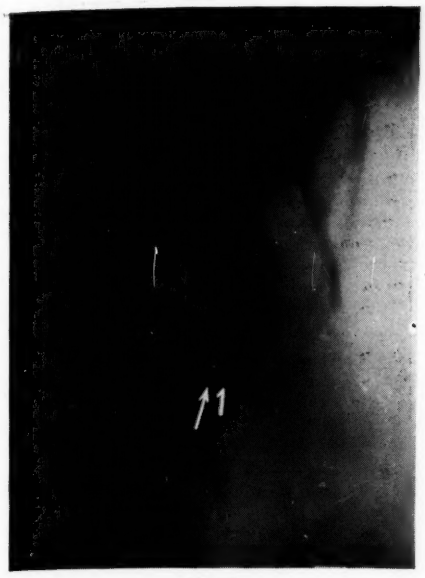


Fig. 1.

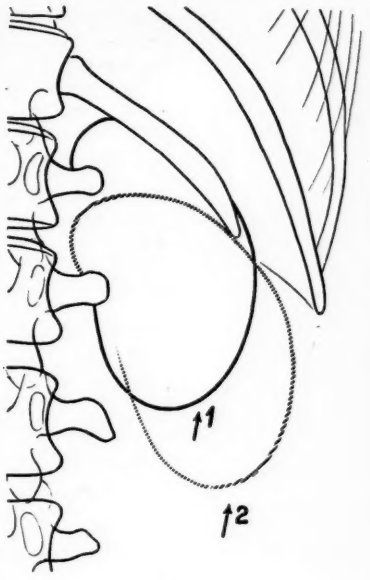


Fig. 3.

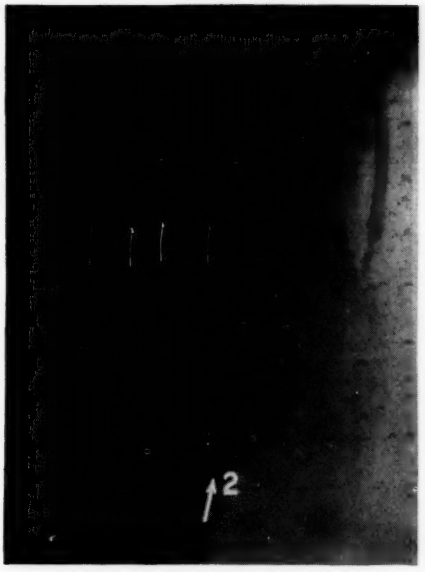


Fig. 2.

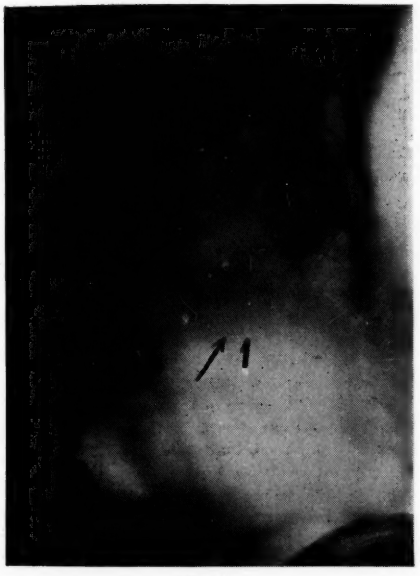


Fig 4.

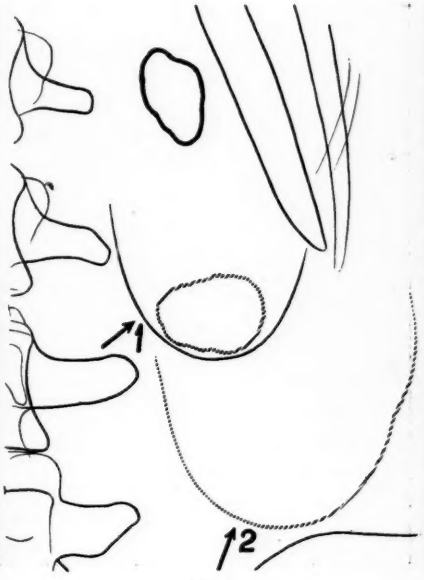
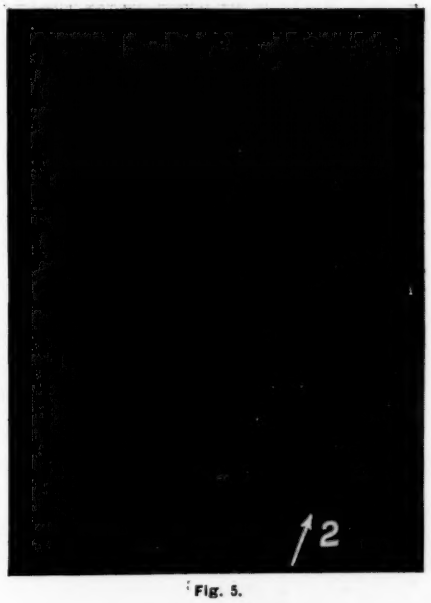


Fig. 6.



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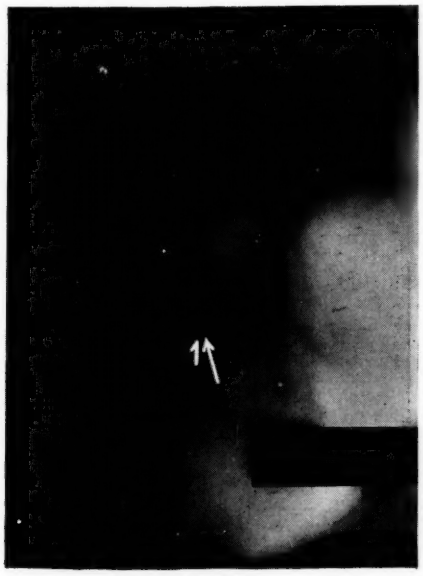

Fig. 7

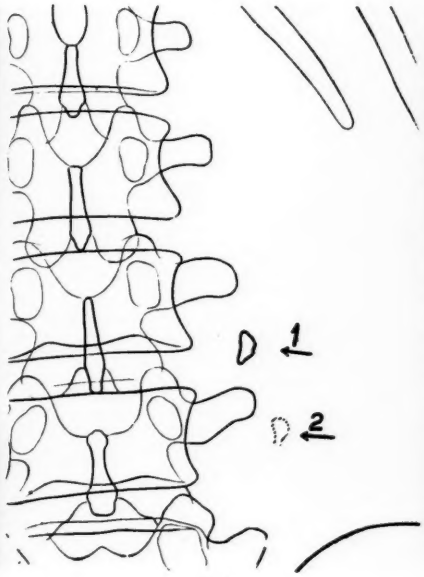

Fig. 9.

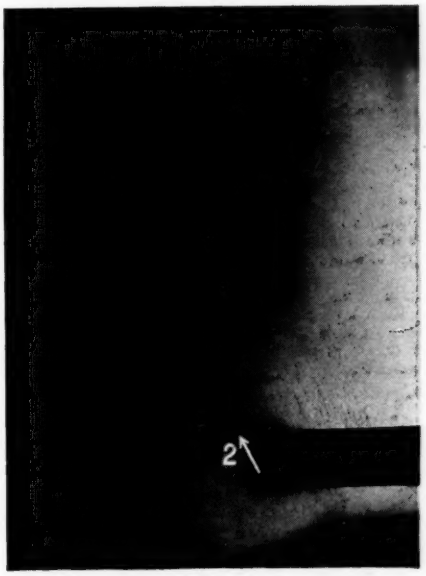

Fig. 8.

TO ILLUSTRATE MR. HURRY FENWICK'S LECTURE ON RENOGRAPHY.

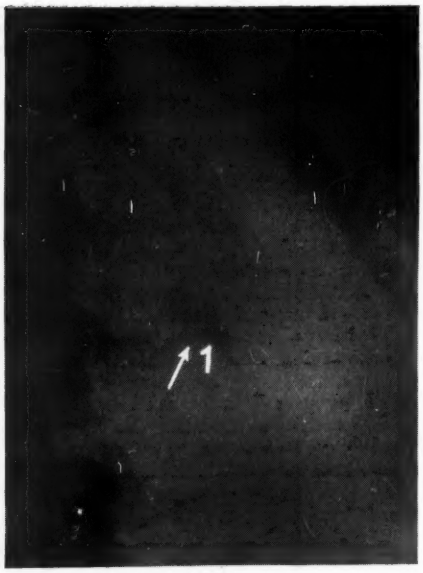

Fig. 10.

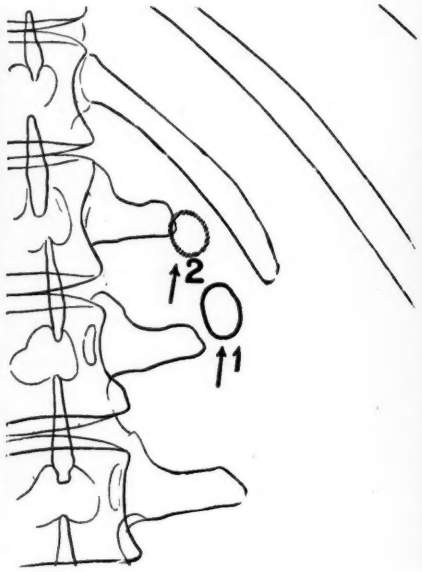

Fig. 12.

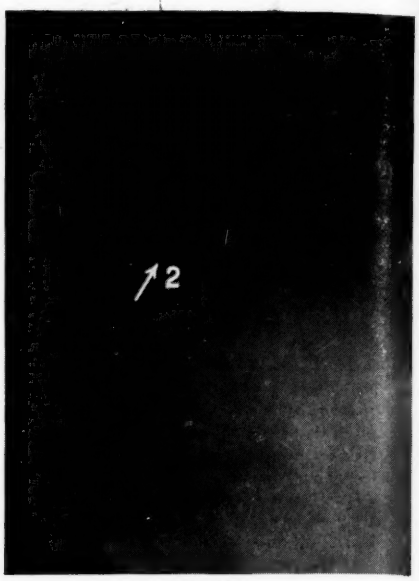

Fig. 11.

Fig. 13.

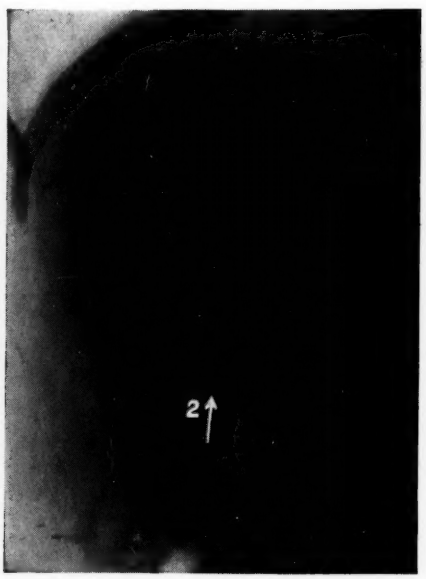

Fig. 14.

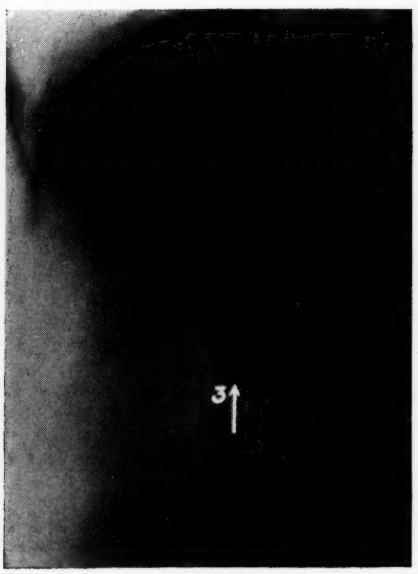

Fig. 15.

Fig. 16.

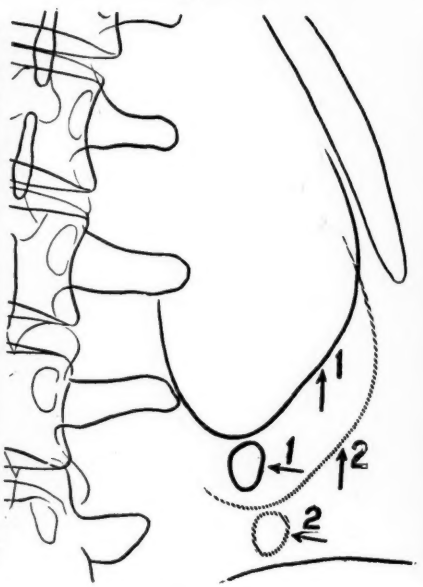

Fig. 18.

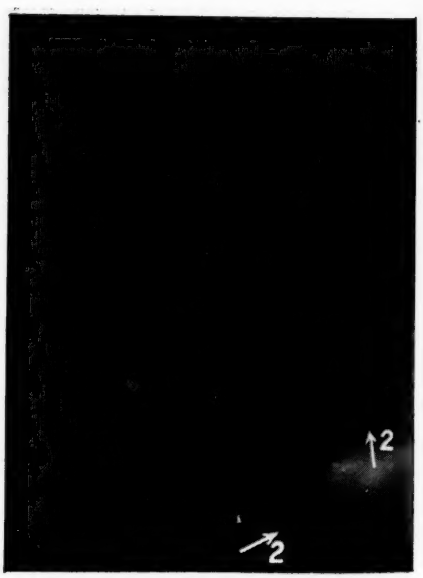

Fig. 17.

For the second plate the patient takes another dose of oxygen and air, though this is not necessary, and fills the chest as full as is possible, and holds the breath. Then, with the kidney thus thrust down and *fixed*, the *x* rays are switched on, and the second plate is taken. This is labelled "*Inspired supine*."

The entire couch is now raised by the head until the body is at an angle of 45 degrees, or even till the patient is almost erect. The kidney is thrust still lower by this position, aided by forced inspiration, and the third radiograph is taken. The plate is labelled "*Inspired erect*." This position is difficult to obtain, and it may often be dispensed with.

These three plates are now carefully developed and dried. Three sharp pencils are taken—black, red, and blue, and a sheet of the thinnest tracing paper.*

The first plate, the "*Expired supine*," is inserted into the negative viewing box, behind which is a strong electric light. The tracing paper is clipped on firmly to the plate, so that it cannot be shifted by the movement of the pencil, and the entire *bony* outline of the spine and iliac bone visible on the plate is minutely copied with the black pencil. The outline of the kidney is now traced in the same way, and any contained stone is also marked. The tracing paper, which is now an exact reproduction in outline of the "Expired supine" plate, is transferred to the second plate, "Inspired supine," and is manœuvred until its black pencil outline of the bony framework shadow is exactly superimposed over the corresponding bony shadows of the second plate beneath. This is adjusted and readjusted until there is but one bony outline visible. If the two bony outlines do not exactly correspond, the patient has moved his body on the plate, or the axis of the light has been changed. The attempt has failed; it is useless.

Provided the outlines correspond exactly, the red pencil traces the kidney shadow, and if there is a stone present it also is marked. If you now glance casually at the result you will be surprised to find how greatly the forced inspiratory effort has thrust the kidney down—the red curve of the cortex of the lower pole may be an inch or more below the black curve. Measure the vertical distance and you will have the measurement of the downward excursion due to the down thrust of inspiration (Plate, Figs. 3, 6, and 9). But this is not all. Clinically, you often want to know what happens when the patient is on his feet; or, it may be, the "Inspired supine" renal contour differs but little from that visible in the "Expired supine," and you must see if gravity will shift the kidney.

Take the third plate—"*Inspired erect*"—and repeat the manœuvre of bony shadow superposition, and mark the kidney outline in blue. Your tracing paper now has all the evidences of the downward movements of the unduly mobile kidney increased by gravity, which you can estimate with an ordinary inch or centimetre rule.

You might remark, "But supposing the kidney has not moved at all?" Well, that is another subject to which I will return shortly, for we have not yet exhausted our present subject.

You notice that in most cases the black, red and blue concave lines which mark the cortex of the lower pole do not lie directly one below the other, as they would do if the kidney dropped directly downwards with inspiration and posture, but tend outward, away from the spine (Plate, Figs. 2, 6, and 18). This shows that the lower pole turns outward when the sliding drop of the kidney is finally checked by the restraining pull of the renal pedicle.

Try and visualize what this tilt means to the due drainage of the kidney pelvis—for all problems in kidney pathology and surgery, except that of malignancy, find their centre and answer in this—the facility or difficulty of renal pelvic drainage.

Will the tilt outwards of the lower pole bend the pelvis at its junction with the ureter, and so impede the outlet? No, it favours the outlet, for it opens the pelvo-ureteric angle, and this position is aimed at by operators in fixing the kidney.

Occasionally, however, you will notice the lower pole turns toward the spine. Surely this will bend the pelvo-ureteric junction, kink the orifice, dilate the pelvis, hollow the kidney, and induce suffering? Not necessarily, for the upper ureter is movable in these cases. The down drag of the kidney has loosened it, and it moves with the kidney in respiration, and it therefore does not kink. If it were fixed, and the kidney movable, a kink must occur at the pelvo-ureteric junction, and all the dangerous and distressing results of kinking and therefore of insufficient drainage ensue.

Some of you will at once say, "But this is in direct opposition to our textbooks! Gigon,[1] in 1856, asserted that the upper ureter was fixed by the peritoneum and could not follow the kidney in its wanderings, and therefore the ureter kinked and hydronephrosis ensued." And you may add that "since his time it has become an accepted fact by the observations and published records of many surgeons."[2] Ah! but this is a half-truth. It does apply to the rotating kidneys, but not to the "dropped" variety which we are now considering. Mark the difference clearly in your mind. The dropped kidney with its huge excursion loosens the ureter, and this does not produce hydronephrosis. The rotating kidney does not loosen the ureter so much, and it is liable to hollowing. If you ask me where is the evidence of this, I answer at once, "The radiograph and a tactile and visual examination of dropped kidneys obtained during operation."

First, the radiographic evidence. Let us take an unequivocal instance.

Plate, Fig. 7, is an oxalate stone in the ureter of a movable kidney in a *male*. You recognize this as a ureteric shadow at a glance, but with forced inspiration the kidney, and with it the ureter, is forced downwards, and the stone shadow is seen to be an inch lower down (Figs. 8 and 9). The upper ureter is therefore movable, for if the ureter were fixed the kidney might drop as much as it liked, but the stone shadow in the ureter would not change its position (confirmed by operation).

But we can now do better than this—we can inject the ureter with collargol, and the *x*-ray shadow demonstrates its curves. Operatively you will find very few of these greatly dropped kidneys have any hollowing of the pelvis or any other signs of kinking of the ureter; the ureter is thrown into curves, of course, but unless there has been periureteritis there is no kink. No, the mobility of the upper ureter does not cause hydronephrosis; it prevents it.

Let me press home this aphorism: The secretory health of the movable kidney, its symptomatology, and the necessity for operative relief depend on the mobility or fixity of its upper ureter.

A Graphic Record of the Exact Line along which the Kidney Moves.

If you desire to see the exact line along which the kidney moves either in drop or rotation, you must utilize another of the expedients I employ. This consists in photographing a stone in the renal pelvis, or a pelvis injected with a shadow-producing fluid (collargol, colloid silver) while it is *moving*. I call it the "snail track," for instead of a sharply defined outline of the stone you obtain a long, broad, blurred trail of shadow which marks the track of the stone as it slowly moves from its lowest to its highest posture during the exposure of the *x* rays. Let your patient take the deepest inspiration and hold it for five seconds;

DESCRIPTION OF SPECIAL PLATE.

Fig. 10.—Radiograph of a stone in a kidney pelvis under full expiration (Arrow 1).

Fig. 11.—Same under full inspiration, showing *ascent* of stone shadow (Arrow 2), this change being due to rotation of kidney.

Fig. 12.—Composite tracing of both figures.

Fig. 13.—Radiograph of stone in kidney under full expiration (Arrow 1).

Fig. 14.—Radiograph of same under full inspiration (Arrow 2).

Fig. 15.—"Snail track" of stone under prolonged expiration, the elongated shadow (Arrow 3) showing the axis of the movement in the kidney.

Fig. 16.—Radiograph of a calcified gland in meso-appendix attached to lower pole of the kidney under full expiration (Arrow 1).

Fig. 17.—Same under full inspiration, showing descent of gland shadow with kidney (Arrow 2).

Fig. 18.—Composite tracing of 16 and 17, demonstrating the certainty of the shadow being a body attached to the lower pole and outside the kidney (elimination of "false" shadows).

* French (vegetable fibre) tracing paper, obtainable at Reeves's, High Holborn, is the best.

time it with your watch. Now let the patient allow a little of the inspired air to escape every three seconds until the fullest expiratory effort is reached; then continue the expiratory effort five seconds. Now look at the radiographic result (Plate, Figs. 13, 14, and 15). You will find a broad stripe of shadow which accurately delineates for you the line along which the stone, and therefore the kidney, has moved. With nervous patients, let them slowly but deeply breathe in and out, and the shadow of the track of the moving stone will appear.

I have now described to you the radiography of the simplest form of dropped kidney—which you can detect bimanually—which drags on and deranges the digestive organs (chylopoietic viscera), but, because its ureter has become *freed* and because its pelvis does not distend, does not evoke the amount of local suffering, nor the same depreciation of renal function as the succeeding, the rotatory, form.

Let us now take the more important group—those kidneys which do not drop greatly but which rotate on an antero-posterior axis, and in doing so kink the fixed ureter and induce back pressure, create a hollowed pelvis

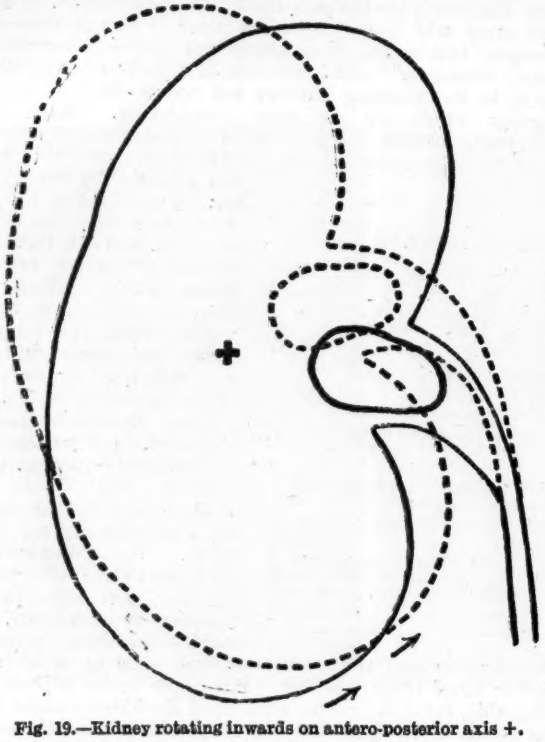

Fig. 19.—Kidney rotating inwards on antero-posterior axis +.

and evoke all the symptoms and renal changes consequent upon that condition.

Axial Rotation of an Unduly Mobile Kidney without Marked Downward Displacement.

When the kidney is placed high up in the thorax its contour can still be followed in favourable cases under forced expiration, although the shadow cast by the kidney tends to blend with that of the liver or spleen.

Suppose you notice the black, red, and blue concave markings of the lower pole do not descend much, but tend rather to rise towards the spine. What may be surmised? Well this: That the upper pole is more or less attached while the lower pole is movable, and the down thrust of inspiration drives the lower pole towards the spine by rotation on an antero-posterior axis.

Two problems arise: What action has this rotation on the renal pelvis? The upper third of the ureter, mark you, is more or less fixed, for it has not been loosened by the long down-drag of the kidney, as occurs in the preceding form. The pelvo-ureteric junction is therefore intermittently bent. Gradually the pelvis is softened, for it is intermittently prevented from easy evacuation, and it distends. Hence comes that hollowing of the kidney which is found operatively in these cases. Hence also the characteristic renal pain at the ileo-costal angle, and widespread nerve distress, and the altered renal function.

The other problem, which to me is of exceeding interest, is why the kidney is fixed at the upper end so that its upper pole moves but slightly? I believe in some instances that corticitis has fixed it; in other words, that adhesions there are most marked.

In some cases history of hepatic, gastric, and duodenal troubles may be elicited, each of which may cause adhesions around the upper pole to fix it. In some cases there is an aberrant renal artery which, I believe, often tethers the upper pole and allows the free lower pole to rotate and kink the pelvo-ureteric junction.

Can we demonstrate this form of axial rotation more exactly?

It is easily done if an oxalate of lime stone chances to be in the pelvis, for its shadow *rises* and passes inwards on forced inspiration (Plate, Figs. 10, 11, and 12). Look at this clay model of a right kidney (Fig. 19). You will realize that it is only by turning on an antero-posterior axis that the shadow of a stone in the pelvis can rise upwards and inwards.

But supposing there is no oxalate of lime stone—and it rarely happens that one is present in the early stages of pelvic hollowing—to help us follow the movement of the kidney by the excursion of its shadow. Inject a little collargol into the renal pelvis, and you obtain a shadow. On the movement and the contour of that shadow in inspiratory effort, whether it opens out or becomes restricted in outline, whether it moves in and up or out and up, will be demonstrated the movements of the kidney. Pyelography will open up a hitherto closed book of problems in the causation of the pathology of surgical affections of the kidney, and its pages will surprise and charm the worker and render renal surgery more accurate, and therefore more beneficent, than has hitherto obtained.

Clinical and Surgical Inferences.

By this method I can generally avoid the mistake of false shadows. True shadows in the kidney move with the kidney. Look at Plate, Figs. 16 and 17. This is not a stone in a kidney but a calcareous gland outside the kidney. By this method I can urge operation for painful kidneys I cannot feel, and dissuade from operation those whose kidneys are not rotating but merely dropping outward. But more than this. At the beginning of the lecture you might have asked, "But suppose the kidney does not move?" Then it is a *fixed* kidney, and a knowledge of it is of real value in operative surgery.

I cannot deal with this subject at present. I can only hint as to its value to the careful surgeon.

If I come across a fixed dense kidney, with profuse haematuria, I know I have to deal with a carcinoma of the kidney that has passed through its capsule, and has fixed it so that there is no use operating; that I shall not be able to get the kidney away without damaging the inferior vena cava or abdominal aorta, or without getting a rapid recurrence by opening up planes along which the malignant growth has interpenetrated.

A fixed dense kidney shadow, I repeat, high up under the costal arch, with profuse, intermittent haematuria, means a "too-late" cancer, for it denotes a malignant kidney that has become glued, and is therefore inoperative.

A fixed shadow of a dense kidney, with stinking pyuria and shadow of pelvic stones, means nephrectomy, and, if the surgeon is wise, subcapsular nephrectomy by the lumbar incision, without touching or separating more of the pericapsular attachments than is just necessary to enucleate the organ and control its pedicle. The surgeon who acts thus will not lose these severe cases.

A fixed dense kidney shadow without stone, but with *coli*-pyuria or staphylococcic pyuria, generally needs the simplest pelvic drainage through the loin without disturbance of the pericapsular area.

A dense fixed kidney shadow without pyuria needs serum treatment for the treatment of the corticitis. But the subject is too big for me to enter upon here more fully. I am painfully aware that time and space permit me but to touch upon the fringe of it. I have said enough to convey to you something of the importance, not only radiographically, but clinically and operatively, of the use of forced expiration and forced inspiration with or without vertical posture of the patient, and I leave you and your radiographic department to utilize or condemn the hints I have conveyed.

References.

[1] Renal Pain, British Medical Journal, January 7th, 1911. [2] Quoted by Sir Henry Morris, *Surgical Diseases of the Kidney*, vol. i, p. 99.

ANTHRAX AND FATALISM.

BY

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ACCORDING to Bacon "the chief obstacles in the way of truth (or causes of error) are four—namely, the plea of an authority that does not deserve the name, long-standing habit, popular prejudice, and an ingrained ignorance that masquerades as so much knowledge." I quote this in connexion with the attitude of most medical men towards internal anthrax or pulmonary anthrax, commonly known as woolsorters' disease; and I wonder why an attitude of fatalism should be reserved for this particular microbic disease and why we should refuse to believe that it is governed by the same biological laws as govern other germ diseases. The prevalent attitude may be thus stated: "If a patient has got internal anthrax that patient must of necessity die; if he does not die, it is not internal anthrax." Giving evidence at an inquest at Shipley last autumn my friend and colleague, Dr. Eurich, Bacteriologist to the Bradford Anthrax Investigation Board, stated "there was not a single case of lung anthrax known to have been cured by injections of any kind."

To my mind in regard to this disease we are reasoning in a circle. We know in undoubted cases of internal anthrax—proved to be such both *ante mortem* and *post mortem*—that bacteriological examination of blood and pleural and pericardial effusions rarely discovers anthrax bacilli more than twenty-four to thirty-six hours before death. Therefore it follows that if these fluids had been examined, say, forty-eight to sixty hours before death the examination would have been negative, and had the patient from the time of that examination begun to improve and eventually recovered, then we should have been placed in the absurd position of maintaining that it could not have been anthrax because we did not find any anthrax bacilli; and (again arguing in a circle) if it had been anthrax the patient would have undoubtedly died. I am quite willing to admit that when the disease has advanced so far that examination of the blood and fluids prove the presence of anthrax bacilli then the patient is beyond hope of recovery and will die. But I hold that until that fatal stage is reached we are justified in making a diagnosis from clinical symptoms alone, just as we do in many other diseases probably microbial, in which the bacteriologist has not been able to help us even to the extent of finding and isolating the germ at any stage of these diseases.

If, then, we can diagnose internal anthrax by symptoms alone, before the fatal stage where the bacilli may be demonstrated, and apply suitable treatment, say by Sclavo's or other anti-anthrax serum, and so bring about recovery; it follows that, bacteriologically, we are then unable to *prove* that the disease was anthrax. To continue the reasoning a little further, all who have had considerable experience of anthrax know that external or cutaneous anthrax, if subjected to no treatment whatever, will by the natural resistance of the body in many cases undergo spontaneous cure. Why, then, may not the same thing occur if the area that is infected primarily is situated in the lung or alimentary tract? We say, "because these local lesions have very seldom been found *post mortem* in the lungs and intestines in cases that have died." But the reason why we have not found these internal local infections clearly is that many have recovered and that those who have died have died of a secondary general infection, and at not one *post-mortem* examination in twenty is any real attempt made to locate the original seat of inoculation. In most cases it would not be practicable to do so, all the pulmonary tissues being altered by the conditions due to the general infection.

During the last half-dozen years, while acting as medical adviser with regard to anthrax for twenty-four large woolcombing firms, forming about 90 per cent. of the woolcombing industry in Bradford and district, I have had the opportunity of examining hundreds of employees who have been off work through illness; many of these cases being suspicious, I have treated with Sclavo's serum with good results. The following notes of one of the best examples of the kind I have had were published in the annual report of the Bradford Medico-Chirurgical Society in 1906:

T. H., aged 53, a finisher, working amongst brown Persian and other dangerous wools, began to feel ill on January 16th, in the evening, was seen by me on the morning of January 19th; was then complaining of "shivering," cough, dyspnœa, nausea, headache, and vertigo; pulse 74, regular but small; temperature, mouth 100.4°, rectum 103.0°; respirations 30. No external sores. Examination showed diminished respiration over whole of right lung. Heart sounds normal. As I considered the case distinctly suspicious of anthrax I gave 40 c.cm. of Sclavo's serum hypodermically under the skin of the abdomen. At 11.30 the same night, pulse 120; rectal temperature 103.4°; respirations 33. Breath sounds puerile over right apex in front. Patient refused more serum that day.

January 20th.—Pulse 104; temperature, rectum, 102.4°; respirations 26. Auscultation gave same results as before; 40 c.cm. more serum given. Bacteriological blood examination for anthrax bacilli gave negative results.

January 21st.—Pulse 85; temperature, rectum, 100°; respirations 21. Breath sounds over right apex not so harsh as before, but some small sibilant rhonchi present.

January 22nd.—12 noon: Pulse 96, weak; respirations 34; temperature, rectum, 102° F.; some lividity of dependent parts. Four inches of fluid in right chest; about 1 in. in left side (took some for bacteriological examination—absolutely sterile); skin cold and clammy. Gave intravenous injections in median basilic vein of 40 c.cm. serum. At 11 p.m.: Pulse 90; temperature 101.6° F.; respirations 38. Patient feels better and is a better colour and skin warmer.

January 23rd.—Pulse 100, regular; respirations 38; temperature, rectum, 100.4° F. Fluid in both pleural cavities increasing.

January 24th.—11 a.m.: Pulse 84, weak and irregular (heart beats 100); respirations 28, laboured; temperature, rectum 100°, mouth 95.6° F. Superficial cardiac dullness absent. Pleural effusion still increasing. Rhonchi over both apices in front. Cyanosis of hands and feet. Gave 30 c.cm. in loin. 10 p.m.: Pulse 102, regular and stronger; respirations 28; temperature, rectum, 100·6° F. Looks bright and feels better. Aspirated 42 oz. blood-stained fluid from right chest. (Bacteriological examination of this fluid negative.)

January 25th.—Pulse 105; temperature, rectum, 100·6°; respirations 34. Fluid still in both cavities. Took some from left side—free from blood; sterile. Gave 40 c.cm. more serum, hypodermically.

January 26th, 11 a.m.—Pulse 106, small, weak, and irregular; could only count by auscultating the heart. Temperature, rectum, 100.4°; respirations, 28. Hands and feet cyanosed. 40 c.cm. serum *by mouth*; 15 minims liq. strych. hypodermically. 5 p.m.: Pulse 100, very small; respirations 24; temperature, rectum, 99°; looks better; 15 minims liq. strych. hypodermically.

January 27th.—Pulse 90, much stronger; temperature, rectum, 99.2°; respirations 15, full and deep (was sleeping, first time for some days); cyanosis of hands and feet less marked. Still fluid in both sides of chest. Bacteriological examination of specimen from right side negative.

January 28th.—Pulse 95, quite regular and much fuller; respirations 22; temperature, rectum, 98.6°; slept two hours. Cyanosis almost gone. Slight diminution of effusion. For the next three days improvement was steady, except that fluid increased in right chest and diminished in left. On February 4th I aspirated 70 oz. from right side—blood-stained, sterile.

From that date recovery was uninterrupted.

The principal features of the case were cardiac feebleness, cyanosis, double pleural effusion, the usual prodromal symptoms, headache, vomiting, and rigors. I based my diagnosis on these symptoms occurring in a man engaged in handling highly dangerous wools, where such symptoms, in the absence of pleuritic friction or pain, pneumonia, tuberculosis, cardiac or renal disease, could not be well explained by anything else. The injections of Sclavo's serum were in nearly every instance followed by a fall of temperature and an increased feeling of comfort and well-being. In all 230 c.cm. of serum were given.

I write this in the hope of combating the feeling of fatalism which attends this disease, and of urging a more generous use of the anti-anthrax serum—to give it, in fact, a "sporting chance." I have used it in many cases, and have seen serum fever and skin eruptions in only a few. They occur about the ninth day, and are accompanied by joint pains.

Since writing the above, some months ago, my ideas have received support from the last report of the Bradford Anthrax Investigation Board. In that report the following passage occurs:

Last year it was pointed out that of the 13 patients of whom the length of employment was ascertained, 5 had handled scheduled materials for only six months or less. The figures this year are still more remarkable, 6 out of the 10 having been employed only for six months or less continuously amongst scheduled materials. It would seem as though length of employment amongst scheduled materials gave immunity

from anthrax to some workers, or at any rate made them less susceptible to an attack of this special form of blood-poisoning.

Now I know of only one way in which immunity against, or diminished susceptibility to, a specific contagion can be accidentally acquired—namely, by contracting the specific disease in question. If, therefore, the above extract has any meaning at all, it can only mean that these wool-workers acquire slight forms of anthrax which give them immunity; in other words, that the views I have been inculcating for the last half-dozen years are supported by the statistics of the incidence of anthrax.

Messrs. F. M. Rimmington and Son, Bridge Street, Bradford, keep a constant supply of Sclavo's serum.

THE INFECTIVE GRANULE IN CERTAIN PROTOZOAL INFECTIONS, AS ILLUSTRATED BY THE SPIROCHAETOSIS OF SUDANESE FOWLS.

By ANDREW BALFOUR, M.D.,

DIRECTOR, WELLCOME RESEARCH LABORATORIES, GORDON COLLEGE, KHARTOUM.

Preliminary Note.

At the first meeting of the Tropical Medicine Section of the British Medical Association in London last year I advanced the view that, in all probability, what might be called the "infective granule" would yet be found to play an important part in certain protozoal infections, and more especially in spirochaetosis and trypanosomiasis. I based this belief on the work of Leishman as regards the changes undergone by *Spirochaeta duttoni* in *Ornithodorus moubata*, and on the allied changes which I had found to occur in the Sudan fowl spirochaete when ingested by *Argas persicus*. I have been continuing the work on fowl spirochaetosis and have recently arrived at some most interesting and significant results, which may yet have considerable bearing on the view we must take of the pathology of this and other spirochaetal diseases, and possibly also on their treatment.

The full account of these later researches will be presented in the fourth report of these laboratories, which is now in the press, and is due to appear in the autumn of the present year; here I wish merely to place on record a few of the more salient features of the work.

It will perhaps be remembered that one found intracorpuscular forms in this fowl spirochaetosis, and that, following Sambon, one had come to the conclusion that these endoglobular bodies represented a stage in the life-cycle of the spirochaete—constituted, in short, its stage of schizogony in the fowl. Sambon, however, who expressed this view from the study of a few slides I gave him, did not indicate how this red cell invasion occurred. For a long time I believed the spirochaetes themselves entered the red cells and broke up, or coiled up, within them to form these remarkable bodies. As the parasites can and do enter and leave the erythroblasts of the fowl, there was good ground for this supposition. Now, however, I know better.

By the use of the dark-field method, and more especially by practising liver puncture on chicks at the crisis or on chicks which have been given a sufficiently large dose of salvarsan, I have found that in the liver in particular, also in the spleen and lung, the spirochaetes undergo an astonishing change. They discharge from their periplastic sheaths spherical granules, and it is apparently these granules which enter the red cells, develop in them and complete a cycle of schizogony. The appearance is very remarkable. If a well-infected chick be given a dose of salvarsan, the peripheral blood is soon cleared, or nearly cleared, of spirochaetes. If then a drop of liver juice be examined by the dark-field method, it will be found swarming with spirochaetes and with highly refractile granules. The source of the latter is soon apparent, for attention will be directed to spirochaetes which are not moving in the usual way, but are in a state of violent contortion, or are, so to speak, shaking themselves to and fro. Indeed, I cannot give a more apt comparison than by likening their movements to those of dogs which have been in water and are shaking themselves vigorously to dry their coats. The object of the spirochaetes, however, is to rid themselves of the bright, spherical granules which can be seen within them, and which may or may not be aggregations of the so-called chromatin core. These are forced along the periplastic sheath and suddenly discharged, so that they become free in the medium and dance hither and thither as tiny, solid, spherical, brilliantly white particles. In process of time the spirochaete loses its activity, becomes difficult to see, and eventually all that is left of it is the limp and lifeless sheath drifting aimlessly in the fluid and liable to be caught up and swept away by some still vigorous parasite. Such a sheath may still retain one or two of the granules which it has been unable to discharge.

As may be imagined, the process is most fascinating to watch, and my observations have been confirmed by Captain Fry and Mr. Buchanan, of these laboratories, and by Captain O'Farrell, R.A.M.C. I may also say that the first-named had previously seen a shedding-off of granules by trypanosomes in the peripheral blood of experimental animals, a phenomenon which he is now studying.

It is these spirochaete granules in the liver, spleen, and lung, and possibly also in other internal organs, which, I believe, invade the red cells. I think I have seen the penetration occur, but require to make further observations in order to be certain as to the mode of entry. Such a chain of events fully explains all the puzzling features which this intracorpuscular infection has hitherto presented, and, moreover, brings it into line with the infective granules found in the ticks, for these very closely resemble those seen in liver-juice films both when examined by the dark-field method and when stained by the Levaditi process. There are various other points, more especially as regards the peculiar staining reactions of these granules, into which I need not enter beyond saying that the fact that, when free, they do not appear to take on the Romanowsky stain may explain why they have not previously been noticed. The work is also not yet complete, as it is necessary to find out if the spirochaetes ingested by ticks behave in a similar manner and thereby produce the granules of Leishman.

I see that Jowett in South Africa has recently discovered what appears to be an identical form of fowl spirochaetosis, and I trust he will employ the dark-field method and endeavour by liver puncture and the use of salvarsan, for the purpose of creating an artificial crisis, to follow out the curious cycle I have indicated.

From these observations and others which will be fully detailed at a later date I have come to the conclusion that this fowl spirochaete must be classed as a specific entity, and I am proposing for it the name *Spirochaeta granulosa penetrans*, which, though lengthy, suitably indicates its more important peculiarities. At the same time it is quite possible—nay, even probable—that other pathogenic spirochaetes behave in a similar manner. I have found these granules to be resistant forms, and their presence in countless numbers in the tissues might explain part of the mechanism of relapse and the difficulty of curing completely some of the more chronic spirochaetal infections, as, for example, syphilis and yaws.

In conclusion, I must thank Professor Ehrlich for most kindly placing at my disposal an ample supply of his new and valuable remedy.

An Anticholera Congress has recently been held at St. Petersburg, under the presidency of the Minister of the Interior.

We are informed that over 100,000 copies of the leaflets on "clean milk" published by the National League for Physical Education and Improvement (4, Tavistock Square, London, W.C.) have been distributed within the last few months mainly by officials connected with health authorities, and also through national and local health societies. The leaflets specially addressed to the householder have been supplied to many education authorities for distribution to the children when lessons on domestic hygiene are being given and for the instruction of the teachers themselves. The league is no doubt well advised in trying to influence the rising generation, and we are glad to congratulate it on the evidence of the good progress made in its useful campaign.

NOTE ON THE THERAPEUTICS OF SUGAR.

BY

SIR JAMES SAWYER, M.D.LOND., F.R.C.P.,

SENIOR CONSULTING PHYSICIAN TO THE QUEEN'S HOSPITAL, BIRMINGHAM.

THE profession is much indebted to Dr. Goulston for his paper in the JOURNAL* showing forth the good effects of the exhibition of sugar in certain forms of cardiac failure. His therapeutic suggestions rest upon sound physiological foundations, based upon recent experimental research, and, illustrated as they are by clinical records of results in medical practice, they promise to become one of the greatest additions to our remedial resources in failure of the musculature of the heart of later years.

I desire now to record that I have used cane sugar freely and frequently during the last ten years or so with success in a variety of morbid conditions. In wasting disorders, in various forms of anaemia, in adynamic varieties of rheumatism, and especially in the neurasthenic manifestations of neurotic persons, I have found the continued ingestion of cane sugar markedly beneficial, increasing weight and power, and appearing to act not merely as a nutrient but also as a tonic in the best senses of that word—namely, as a very valuable medicine, "the continued administration of which in debilitated and relaxed conditions of the body imparts strength and vigour without producing any sudden excitement,"[1] and as a corroborant gently stimulating the vital energies to an aroused action by a kind of mild stimulation, slowly produced and permanent in effect. For an adult I have usually prescribed from a quarter to half a pound of lump cane sugar, to be slowly eaten daily, a lump or two to be taken at odd times through the day or night, but not just before a meal, the patient always carrying a little store of the remedy with him, and eating some of it when so disposed.

Now we shall have to think of members of the sugar group especially as sustainers and developers of the musculature of the heart, as in failure of compensation, and in a large variety of cardio-vascular troubles. It would seem that our obstetric brethren might find the remedy useful in conditions of uterine atony, say as a particular nutrient during pregnancy.

I have found it useful to recollect that cane sugar may be distinguished from other forms of sugar by its luminosity in the dark when two lumps are rubbed together.

REFERENCE.

[1] Neligan's *Medicines*, etc.

THE CARDIGAN CANCER CURES.

BY

G. M. DAWKIN, M.R.C.S., L.R.C.P.,

PONTYPRIDD.

IT was my lot to visit the town of Cardigan during the time when the cures had been boomed, and when there were scores of people going there for treatment, some of them with malignant growth, some for benign, but all diagnosed as cancerous.

My first visit was with a lady patient who was suffering from cancer of the throat; she had seen several London specialists, including Sir Felix Semon, and the case was considered quite inoperable and hopeless by him and by Mr. Tilley. On the evening of our arrival the two brothers came to visit her and examined her throat. The growth was pharyngeal, and invaded the posterior part of one tonsil; but this state of affairs did not prevent them from assuring her that she might confidently expect recovery, as they had cured worse cases. They gave some oil which had to be rubbed on the neck, and treatment was continued for a couple of months, when the end came, not in the promised recovery, but in death.

The second patient of mine who went there was an elderly man with cancer of the lip, which he had refused to have removed by operation. When I saw him in Cardigan he was quite hopeful, and considered the treatment was doing him good, but I could find no reason for this belief except that he was having a great deal of pain, and he had been assured that this was a most desirable thing, as the remedy had now reached the roots of the cancer, which were being tugged away. He came home in about six weeks worse than he went, and ultimately died of his disease.

A painful feature of this case had reference to his daughter, who had accompanied him to Cardigan. For some reason or other she had been induced to show her breasts to the "doctors," and cancer was at once diagnosed and active treatment commenced on the right breast. When she returned to Pontypridd she was given some powder and oil to apply according to their instruction. The treatment was most agonizing, and I was asked to see her. The breast was simply raw; all the skin had been completely eaten away; there was nothing in the breast beyond the ordinary glandular structure, and the treatment was stopped and the breast healed up under ordinary treatment. She was only about 27; and she was married last year, giving birth to a child recently, and, of course, suffering from the inconvenience of having her right breast useless.

A third case came under my notice, that of an elderly lady with cancer of the breast. After nearly twelve months she came home to die. It was on my first visit to Cardigan that I was told that Mr. W. T. Stead had sent down a test case, and I went to see him. This man's name was Drummond, and he stayed at Adelphi House. He was, I should think, about 40 years of age, and lived in either East or West Ham. He told me he had been at several hospitals, and was a patient at the Middlesex before coming down to Cardigan. When I saw him he told me that the "cancer doctors" were very hopeful about his case, and he too, poor fellow, had been inspired with a hope that was to be falsified very soon. I found that he had a sarcoma on the left side of the neck as large as a small orange. He had been under treatment for several weeks, and the surface of the tumour was almost black and cracked in several places, suggesting that it had been treated with some strong escharotic like chloride of zinc. The application of the remedy gave much pain, but here, as in other cases, the pain was considered as a clear indication that the growth was being eradicated. I saw Drummond about three times at intervals of about three weeks. There was no change in the tumour except that the surface was fissured and a little shrunken. Soon after my last visit he returned to London and died.

A fifth case that I saw was a man with cancer of the throat. Here again a most cheerful view was taken, and great hope given, all to end as usual—in death.

The faith that even educated people place in quackery was curiously illustrated by a lady whose husband was a relative of a distinguished physician. She was supposed to be suffering from cancer of both breasts, and was undergoing very active and agonizing treatment. I was allowed to examine her breast, and the gland had been practically eaten away by some eroding agent. The detached parts which fell from the breast when I examined it had the appearance of mortar, and crumbled on pressure. No antiseptic treatment was followed, but in spite of this there was nothing offensive or putrescent about it, showing, I suppose, that some powerful mineral had been employed in the remedy.

In no case have I known an authentic and unquestionable malignant growth yielding to the Cardigan cure, and I think all the boomed successes are cases of warts, fibromata, and other non-malignant conditions.

*Note on the Beneficial Effect of the Ingestion of Cane Sugar in Certain Forms of Heart Disease. BRITISH MEDICAL JOURNAL, March 18th, 1911.

A PAMPHLET, under the title of *No Irish need Apply* and intended for circulation among the public, sets forth the views of the Association of Fellows of the Royal College of Surgeons of Ireland as to the impropriety of the regulations of any English hospital being so framed as to limit candidature for appointments on the surgical staff to those possessed of the diploma of fellowship of the Royal College of Surgeons of England, thus excluding, among others, persons possessed of diplomas and degrees from Irish corporations and universities. By way of illustration is appended a recent correspondence between the association and the authorities of the Manchester Royal Infirmary and some comments thereon by the medical journals. The pamphlet is stated to be the first of a series.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

OPERATION FOR DISPLACEABLE PATELLA.

At page 731 of the Journal of March 25th is a short communication from "Cantor" referring to a proposed operation on a case of outward displacement of the patella in a young woman. Having recently had to deal with a case of this sort, "Cantor," I am sure, will be interested in this reply:

In March, 1905, a lady of 25 years was brought to me because she was rendered unsafe and unhappy by recurrent dislocation of the right patella. Sometimes the displacement occurred three times a day. Eighteen months previously the dislocation happened at the top of a flight of stairs, with a disastrous result. On the other side she had a congenital displacement of the head of the femur, and occasionally the patella of that side also slipped out, but she regarded this as being of quite secondary importance. She had genu valgum on both sides, and although "Cantor" says nothing as to the existence of this defect in his patient, I am inclined to assume that it is present. If he will fully extend the legs and then bring the knees together thus extended, he will probably find a separation of two or more inches between the internal malleoli. In the case of a knock-knee, the energetic action of the rectus femoris and its partners causes the patella to be displaced a little outwards, and one day the knee-cap slips right off the trochlear surface, a true dislocation resulting.

To remedy this defect in my patient I advised subcutaneous division of the femur just above the joint, and the conversion of the condition of genu valgum into that of genu excurvatum. She entered a nursing home, and I did the operation with a keyhole saw, fixing the limb in a slightly bowed position, the concavity of the bow being, of course, diverted inwards.

About five months after the operation she came to report herself, and told me that the knee had behaved perfectly well ever since, though I confess that I was somewhat alarmed at the perilous way in which the patella glided outwards when the knee was flexed. It was like a man standing upon the edge of a cliff where a puff of wind might suffice to blow him over. Still, it had never slipped out since the operation, so I had no real cause for fright.

In the following November I saw her again, when she said that soon after her last visit she had caught her dress in a door, and that, falling, she had hurt the left knee, dislocating the patella outwards, but that the patella of what she was pleased to call "my" knee had remained steadfast. With drilling and exercises her limbs greatly improved, as did also her general condition; but the patella of the left, the poor, hip shot limb, gave constant anxiety, for it was ever apt to slip out, giving her intense pain.

In October of last year she came suggesting that I should do for the left knee the operation which had proved so successful on the other side. Dr. Tanner, of Farnham, came with her and supported her suggestion. Seeing that, at the best, the left limb was but a poor one, I hesitated to operate without the approval of an independent surgeon, and Mr. Bowlby was kind enough to see her with Dr. Tanner and me. Shortly after this interview subcutaneous osteotomy was done on the left femur, the limb being fixed up in an outward bowed condition, and, though the limb is still weak, this patella has also kept in place in spite of a serious fall which the lady met with some weeks ago.

If it be suggested that it is early days yet to publish the second operation as a perfectly satisfactory one, my reply is that I have not hurried in with my report in order to announce the "successful result" which is apparently inseparable from the account of a surgical operation at the present day before there has been time for it to prove a failure—I merely send it in as an attempt to answer "Cantor's" request for advice in a somewhat rare but extremely troublesome condition.

London, W. Edmund Owen.

GOAT'S MILK FOR INFANTS.

I read with interest Dr. Alcock's note on goat's milk, in the British Medical Journal of March 18th, and I can thoroughly endorse his suggestion of the value of goat's milk in many cases of infant feeding. My own four children have been brought up largely on goat's milk, the last two from birth. As we keep our own goats no sterilization is done, nor would it be necessary in any case in view of the extreme rarity of tuberculosis in goats. This is of course a great advantage. I have found its digestibility to be greater than that of cow's milk, and, as is well known, its proportion of fat is considerably higher. I recently tested a sample from a goat that was nearly eleven months from kidding, and found 5.4 per cent.; while an analysis of dairy cow's milk made at the same time gave only 3.25.

It must be borne in mind, however, that with goat's milk the cream is in much finer globules and does not so easily separate out as does the cream of cow's milk; hence testing with a creamometer does not give correct results. The amount of fat must be determined by a proper butyrometer; and no doubt this apparent absence of cream has given rise to the opinion prevalent in some parts that goat's milk is "poor." There is no doubt that as an alternative to cow's milk where the latter disagrees or the child is not thriving, goat's milk is greatly neglected by the medical profession of this country.

London, S.W. Sidney H. Snell, M.D., D.P.H.Lond.

Reports

on

MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

VICTORIA HOSPITAL, BANGALORE.

EXTRAPERITONEAL TRANSPLANTATION OF THE URETERS INTO THE RECTUM.

(By J. V. Arumugum, M.B., Medical Officer in Charge.)

The following two cases show the result of extraperitoneal transplantation of ureters into the rectum for extroversion of the bladder after the lapse of over four years in each case.

The first patient, a boy aged 18 years, underwent operation for extroversion of the bladder on August 20th, 1906, when the ureters were transplanted into the rectum according to the method advised by Mr. Peters, of Toronto. The patient was discharged from the hospital fifty-eight days after the operation. At the time he left he was able to retain urine in his rectum for about four hours during the day, and nearly for nine hours at night—that is, during sleeping hours (from 9 p.m. to 6 a.m.).

The second patient, a boy aged 13, had the same operation performed for the same cause on April 15th, 1907, and was discharged from the hospital on June 15th, 1907—that is, two months after the operation. This patient was able to retain urine in the rectum for about four hours during the day, and for nearly five hours at night, at the time of his discharge from the hospital.

I have seen both these patients several times since their respective operations, the second case being last seen by me on February 16th, 1911. I then found the patient was able to retain urine in his rectum for nearly six hours during the day, and was at times disturbed at night only once between 9 p.m. and 6 a.m.—that is, during his sleeping hours.

The first case was last seen by me about three months ago, that is, after four and a half years, when the patient was able to retain urine in his rectum from five to six hours during the day, and for nearly eight hours at night—that is, during sleeping hours from 9 or 10 p.m. to 5 or 6 a.m.

At the recent examination for sanitary inspectors under the Public Health London Act 1891, held by the Sanitary Inspectors Examination Board, 31 candidates passed, of whom 16 were women.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BIRMINGHAM BRANCH.

Birmingham, Friday, February 24th, 1911.

Dr. MELSON in the Chair.

PATHOLOGICAL AND CLINICAL SECTION.

Raynaud's Disease.

DR. SHORT showed a woman, aged 49, suffering from gangrene of the tips of two fingers of each hand. She said she had suffered from cold hands all her life, and about five years ago they went white and dead. Structural changes commenced one year ago in one hand, followed by a similar condition in the other six months later. Considerable improvement had taken place from prolonged treatment by faradism applied by passing the current through hot water to the immersed hands several hours at a time, with great subsequent relief to the acute pain. Vasomotor dilators and calcium lactate had proved disappointing in their effects, and the best results had been obtained by the faradism combined with morphine at intervals.

Sudden Blindness after Haemorrhage.

Dr. SHORT showed a man, aged 55, who had become totally blind in the left eye, and partially so in the right, immediately following a severe haemorrhage, probably from oesophageal varices. He had been drinking for some months, and had a severe bout just prior to the bleeding. The discs showed commencing atrophy following a slight optic neuritis, with moniliform and irregular vessels of restricted range over the retinae. The atrophy was more marked on the left side. There was no sign of embolism or thrombosis. Vision charts of the case prepared by Dr. Jameson Evans were also shown.

Multilocular Cystic Disease of the Testicle.

Mr. B. J. WARD showed a specimen of multilocular cystic disease of the testicle, which was found at the autopsy of a man, aged 50, who died of some other disease. The cystic condition was situated between the epididymis and the body of the testis. The cysts were thin-walled, transparent, and contained clear, watery contents which showed no spermatozoa under the microscope. It was a matter of considerable speculation as to what was the seat of origin of the cystic dilatation. Mr. Ward was of the opinion that it probably arose in the paradidymis rather than in the epididymis.

Embryoma of the Testicle.

Mr. SEYMOUR BARLING showed three specimens of embryoma of the testicle. All three tumours had been removed from adults between the ages of 20 and 30, and had given rise to a painless steady enlargement of the affected organ over a period varying from two to five months. Two of the tumours contained derivatives of each of the three germinal layers—epiblast, mesoblast, and hypoblast. In one of these, however, the hypoblast had undergone carcinomatous degeneration, while another presented the appearance of cystic adenoma of the testicle, and no malignant change could be detected. The third case contained only mesoblast and hypoblast, and the mesoblastic portion had become sarcomatous.

Diffuse Sarcoma of Spinal Cord.

Dr. KAUFFMANN showed the spinal cord and brain of a child, aged 23 months, which exhibited a diffused subarachnoid sarcoma of the cord, together with multiple growths of the same kind springing from the arachnoid over the pons and cerebellum. Many of the spinal nerve roots within the vertebral canal showed similar small growths, and the lumbar plexus of each side did likewise. The Gasserian ganglion and the ganglia of the vagus and glossopharyngeal nerves were involved in tumour growth. Death had occurred from intracerebral pressure due to distension of the ventricles with clear cerebro-spinal fluid. There were no tumours within the brain cavities. In the arachnoid of the cisterna magna it could easily be seen that the tumours sprang from the pial face of the arachnoid, and that they had in some cases not yet become attached to the pia mater. In the cord the diffuse growth, which in the dorsal region still showed distinct nodulation, was equally fixed to the outer face of the pia and the visceral face of the arachnoid. Section at several levels showed the cord itself to have apparently escaped pressure. Section of a Gasserian ganglion demonstrated the nerve fibres, apparently unaltered, running through a dense mass of sarcoma (round and spindle-celled). Symptoms had lasted only four months, and began with severe pains in the head and violent screaming fits. Blindness had come on within the first three months, and was apparently total. Muscular power had been well preserved, and up to a fortnight before death the child had been able to walk, and still later had used both the arms and legs vigorously. It had played, when not in pain, up to nearly a week before death. Hearing had been acute, comprehension the same, and speech perfectly normal in content and utterance until the onset of the final pressure signs, which had commenced ten days before death.

Chronic Intussusception of Caecum.

Mr. LUCAS showed a specimen of chronic intussusception of the caecum removed from a man aged 32 in August, 1910. The patient had tenderness over the duodenum, and suffered from wasting, vomiting, incomplete obstruction, occult blood in stools, and a mass thought to be over the pylorus. He was subjected to exploratory laparotomy under the impression that the condition was one of duodenal ulcer. The tumour, however, was found to be in the caecum, and was removed in the belief that it was malignant. After resection a lateral anastomosis was made. The patient made a good recovery. On microscopical examination the mass was found to be purely inflammatory as a result of an intussusception. There was no evidence of malignancy.

Tuberculous Kidney.

Dr. MELSON showed a specimen of tubercle of the kidney from a male aged 19. There was a family history of tubercle. The patient's illness commenced fourteen months prior to operation, with pain at the end of the penis and slight frequency of micturition. In April, August, and November, 1910, he had attacks of haematuria lasting a few days. In November he consulted Dr. Melson for the first time. During that month he was cystoscoped by Mr. Leedham-Green. He was examined with the x rays without result. The function of each kidney was then tested by methyl blue and ureteral catheterization. Tubercle bacilli were found in the right kidney secretion, and its function was very seriously impaired. The left kidney appeared to be healthy. Lumbar nephrectomy was performed by Mr. Green on February 21st, 1911, and the patient up to date was doing well.

YORKSHIRE BRANCH.

AT the spring meeting, held at the Huddersfield Infirmary on March 15th, Mr. PYE-SMITH, President, in the chair, the following specimens were shown: Mr. CROSSLAND (Huddersfield): (1) Sarcoma of kidney; (2) submucous fibroid; (3) undescended testicle and hernial sac; (4) enlarged prostate and prostatic calculus. Mr. MARSHALL (Huddersfield): (1) Epithelioma of tongue; (2) abnormally long appendix; (3) fetus and placenta from a ruptured ectopic.

Professor HELLIER (Leeds) gave a brief report of 101 cases of *Procidentia uteri treated by operation* since 1906 by a method described by him in the *Lancet*, September 24th, 1910, which combined amputation of the hypertrophied cervix and narrowing of the vaginal walls with Wertheim's plan of vesico-vaginal interposition of the anteverted uterus. If the child-bearing period was not over, partial salpingectomy was added. The age most suitable was from 35 to 60. Dr. Hellier had investigated the after-history of 55 of his earlier cases, and about 19 out of 20 seemed to be permanently cured. There had been one death in an elderly patient, otherwise there had been a remarkable freedom from suppuration or other operative mischances.

Mr. MICHAEL TEALE, with Mr. REGINALD HANN, related two cases of *Recurrent headache associated with oculomotor paresis* ("*Ophthalmoplegic migraine*"):

Case I.—A girl, aged 9 years, was seen in 1909 with almost complete paralysis of the third nerve on the right side, which had followed severe headache and vomiting. Recovery was practically complete in six weeks. In 1910 two similar attacks occurred. The child appears to have suffered regularly from such attacks every summer since she was 3 years old.

Case II.—In 1903 a young lady, aged 21, was seen by Mr. Hann. She had been subject to attacks suggestive of migraine since childhood, and when seen in 1908 suffered from headache, divergent squint, left ptosis with dilatation of left pupil. Recovery in three weeks. Several attacks of headache and double vision since then.

Dr. Arthur Hall read notes of a case of *Cryptogenetic septicaemia*. A man aged 40, a solicitor's clerk, whose previous health had been quite good, had a sudden attack of abdominal pain, vomiting, diarrhoea, and rigors. The other symptoms subsided, but the rigors recurred daily, accompanied by pyrexia, up to 103° or 104° F., and this continued for about three months. He was admitted to the Sheffield Royal Hospital seven weeks after the beginning, and a thorough and complete examination of every organ and secretion showed nothing abnormal except the presence of a streptococcus in the blood. The teeth were all extracted on account of possible oral sepsis, but without causing any diminution of the rigors and fever. Malaria could be absolutely excluded. Anti-streptococcic serum and vaccine were successively tried without any benefit. At the end of about three months, when the condition appeared to be as severe and hopeless as ever, he was placed out of doors, on the balcony of the ward, night and day. Within twenty-four hours of this being done the rise of temperature ceased and the rigors stopped. From that time onwards he made steady and complete recovery, and now, more than a year afterwards, he is still in perfect health and doing his full work as well as ever. Dr. Hall also read notes of a case of *Acute secondary syphilitic nephritis*, which ended fatally, in spite of antispecific treatment. Symptoms of nephritis appeared coincidently with the other usual secondary symptoms, and proved fatal in the course of six months. The case corresponded with those described as nephritis syphilitica praecox.

Reports of Societies.

THE ROYAL SOCIETY.

Thursday, March 16th, 1911.

Sir Archibald Geikie, K.C.B., President, in the Chair.

The Venom of Echis Carinatus.

Sir Thomas R. Fraser, M.D., F.R.S., and Dr. Jas. A. Gunn had found the minimum lethal dose of Echis venom by subcutaneous injection per kilogram was: For the frog, 0.009 gram; for the rabbit, 0.0009 gram; for the rat, 0.00075 gram; for the cat, 0.008 gram; and for the pigeon, 0.004 gram. The frog and the cat, therefore, showed a relatively high resistance to this venom, the minimum lethal dose for these animals being about ten times that for the rabbit or rat. In the case of Sepedon venom, which might be taken as a typical colubrine venom, a different ratio of lethality for those animals had been found, the cat showing relatively even a higher resistance, but the frog no increased resistance, as compared with the rabbit or rat. This of itself pointed to an intrinsic difference between the actions of viperine and colubrine venoms. The chief effects produced by Echis venom in the animals investigated were—haemorrhages occurring locally and distally, alterations in the coagulability of the blood, and secondary effects upon the respiration, heart, and central nervous system. The symptoms of experimental poisoning thus very closely resembled those which have been described in cases of Echis bite in man. Echis venom differed from colubrine venoms in having little or no direct action on the central nervous system or on the nerve terminals in voluntary muscle. It had a direct action in lowering the blood pressure in mammals by slowing and weakening the heart's contractions; lethal doses also produced a fall of temperature in mammals. The chief toxins in Echis venom, in the order of their potency, were a haemorrhagin, a substance which altered the coagulability of the blood, and a haemolysin.

Development of T. Gambiense in G. Palpalis.

Colonel Sir David Bruce, C.B., F.R.S.; Captains A. E. Hamerton, D.S.O., and H. R. Bateman, R.A.M.C.; and Captain F. P. Mackie, I.M.S. (Sleeping Sickness Commission of the Royal Society, Uganda, 1908–10), reported the results of further researches on the development of *Trypanosoma gambiense* in *Glossina palpalis*, as follows: (1) In the course of the development of *Trypanosoma gambiense* in *Glossina palpalis* the proboscis does not become involved, as in the case of some other species. (2) A few days after an infective feed the trypanosomes disappear out of the great majority of the flies, but in a small percentage this initial disappearance is followed by a renewed development. (3) After a very short time the flies which have fed on an infected animal become incapable of conveying the infection by their bites, and this non-infectivity lasts for some twenty-eight days, when a renewed or late infectivity takes place. (4) A fly in which this renewed or late infectivity occurs can remain infective for at least ninety-six days. (5) An invasion of the salivary glands occurs at the same time as this renewal of infectivity, and without this invasion of the salivary glands there can be no infectivity. (6) The type of trypanosome found in the salivary glands when the fly becomes infective is similar to the short stumpy form found in vertebrate blood, and it is believed that this reversion to the blood type is a *sine quâ non* in the infective process.

Spontaneous Cancer in Mice.

Dr. M. Haaland (Imperial Cancer Research Fund) reported observations upon 300 mice in which cancer had developed spontaneously. The tumours originally observed numbered 350. Many of the mice presented multiple growths. It was important to note that forty-two tumours had a structure distinct from that of the well-known mammary tumours of the mouse. Spontaneous healing was recorded of undoubted malignant new growths. The reasons for that preponderance of mammary tumours which was characteristic for the mouse had been sought. The physiological demands made upon the mamma by repeated pregnancy and lactation could be excluded, since many of the mice which had been under observation since birth had never littered, and twenty had been completely isolated from possibility of association with a male. The histological examination of the mamma of a large number of old mice, cancerous and non-cancerous, showed the frequency of chronic inflammation combined with hypertrophic and other changes in the epithelium. The latter passed through all stages to definite tumours. The only explanation found for the chronic inflammatory and other changes was the presence of nematodes. Numerous experiments of diverse kind were made to define the parts played by local causes, such as those described above, and by constitutional conditions. All the evidence pointed to the importance of local causes—for example, chronic irritation—and to the absence of general constitutional changes favourable for the growth of cancer. The part played by the irritant was a mediate one, so that it produced the altered conditions under which either the first departure of the cells from the normal took place, or permitted spontaneously occurring sports of cells to multiply and adapt themselves to a new mode of life as observed in propagated tumours.

MEDICAL SOCIETY OF LONDON.

Monday, March 13th, 1911.

Mr. Charters J. Symonds, President, in the Chair.

Syphilis and Tubercle.

Mr. D'Arcy Power, in a paper on the influence of syphilis and tuberculous infections of the human body, said that children with hereditary syphilis often showed signs of tuberculous disease of the joints, in the form of "gummatous" synovitis, which did not improve beyond a certain point under treatment by antisyphilitic remedies. In young adults born of syphilitic parents an attack of pneumonia or other infective disease might be followed by signs of syphilitic inflammation (*syphilis hereditaria tarda*). The syphilitic lesions thus manifested might become tuberculous and the patient might die of tuberculosis. Adults who acquired syphilis whilst suffering from tubercle were liable to have any pre-existing tuber-

culous inflammations rendered much more active. It was to those persons that the generalization applied: "The tuberculous bear syphilis badly." Old persons who had acquired syphilis many years previously might be attacked by senile tuberculosis. The tuberculous inflammation ran a more chronic course than usual in such persons, and there was less liability to suppuration.

Tubercle Diabetes, and Gout.

Dr. NATHAN RAW, in a paper on the influence of diabetes and gout on the tuberculous infections of the human body, said it was possible that persons predisposed to diabetes might be unusually susceptible to infection by tubercle bacilli, while the increasing debility associated with diabetes favoured the rapid progress of a tuberculous infection. If diabetes and gout were both disorders of nutrition, he felt certain that tuberculosis was also to a great extent a matter of nutrition. The infection of human beings by tuberculosis must be fairly general in a community in which it was rife, and if blood nutrition were good the risk of an active growth was small, because after all the tubercle bacillus was a parasite to man. If, on the other hand, blood nutrition were poor, as in diabetes, the danger of an active infection by tubercle was great, and the process was often acute and rapidly fatal. During the last twenty years he had had under his care in hospital over 4,000 cases of tuberculosis, but he could not recall a patient admitted with sugar-free urine in whom diabetes mellitus developed. The only deduction he could draw from that clinical observation was that diabetes did predispose to tuberculosis, while tuberculosis had no predisposition towards diabetes. What the explanation of that really was he could not say. It was a fact, however, that during the course of a tuberculous infection other intercurrent infections were uncommon; hence it would seem that the blood plasma could only tolerate one infection at one time. He had come to regard the gouty diathesis as antagonistic to tuberculosis; the blood of a gouty person was not a medium in which tubercle bacilli would flourish, while diabetic blood seemed to stimulate and foster the development and rapid growth of tuberculosis. It was a matter of common experience that if they were able to improve the nutrition of a tuberculous person to a high degree of efficiency they might expect, and often obtained, an arrest of the tuberculous infection, and their patient got well; but if they were unable to do so, all their efforts were of no avail, and the tuberculosis prevailed. He had often thought that in the so-called open-air treatment of consumption they really produced in their patients an artificial gouty condition with increased nutrition on which they improved, but he must confess he had never seen a cured consumptive develop an acute gouty attack.

ROYAL SOCIETY OF MEDICINE.

SECTION OF ANAESTHETICS.

Thursday, March 2nd, 1911.

Dr. MCCARDIE, President, in the Chair.

Scopolamine-Morphine Narcosis.

Dr. DUDLEY BUXTON, in introducing a discussion on the use of scopolamine and morphine, atropine, and similar drugs by injection before inhalation anaesthesia, gave a history of the subject, showing that the underlying idea was no new one. The advantages of preliminary seminarcosis were that it removed pre-anaesthetic alarm, lessened the amount of the general anaesthetic, and so diminished after-effects and gave prolonged post-operative sleep and mental tranquillity. When open ether was used, he considered the addition of atropine to the scopolamine and morphine essential. Dr. F. S. ROOD recorded 300 cases in which he had used scopolamine, morphine, and atropine, and drew the following conclusions: From the point of view of the patient, it either blots out or robs of its terrors the preliminaries of an operation, which in some cases—as, for instance, exophthalmic goitre—is a very real advantage. Also it diminishes the discomforts of after-pain, etc., by lengthening the period of unconsciousness, and vomiting certainly seems to be lessened. From the point of view of the operator, the quiet respiration and relaxation which is usually obtained is of great assistance; and, finally, there is the undoubted advantage of being able to substitute, with equal results, a safe drug like ether for a dangerous one like chloroform. Dr. MACNAUGHTON-JONES said that he had been using scopolamine-morphine and chloroform anaesthesia in serious abdominal and pelvic operations for nearly five years. In the great majority of his cases a subcutaneous injection of morphine, gr. $\frac{1}{4}$, and scopolamine, gr. $\frac{1}{100}$, were given the night before, after the bowel had been well emptied; a second injection was given the following morning after a rectal enema; and, one hour before operation, strychnine, gr. $\frac{1}{30}$, and atropine, gr. $\frac{1}{100}$, was administered subcutaneously. A "Vernon Harcourt" regulator was invariably used. The last 30 of his gravest cases might be taken as typical of the effect and advantages of this form of anaesthesia. In regard to vomiting, in 18 of these cases there had been little or no sickness; some sickness occurred in the instance of five patients on the day of operation, and four had not vomited until the second day. Only in one case had there been persistent vomiting. In this three coeliotomies had been performed at comparatively short intervals. It was clearly a case of idiosyncrasy. The patient had been operated upon previously under chloroform anaesthesia, and there had been persistent vomiting for some days. Dr. J. BLUMFELD had used morphine and atropine before various general anaesthetics, and considered less mucus and additional quiet were obtained. He had heard from Mr. Page of cases of respiratory difficulty and actual cessation of respiration from morphine administered too short a time before the operation, and its effects deepening while this was proceeding. Mr. BARTON used $\frac{1}{100}$ grain scopolamine and $\frac{1}{6}$ grain morphine three-quarters of an hour before operation. He found it specially useful in laryngeal and oesophageal work. He found induction shortened and abdominal rigidity diminished. Open ether was used. There was also less tendency to shock, which counterbalanced the occasional tendency to respiratory difficulty. Dr. F. SILK said there was difference of opinion as to rigidity, some finding less, others more, when scopolamine and morphine were used. In the latter cases he thought probably too little anaesthetic was used. There was also a good deal of uncertainty about the duration of stupor and the frequency of vomiting. Mrs. DICKINSON BERRY stated that atropine and morphine, $\frac{1}{100}$ and $\frac{1}{6}$ grain, had been used at the Royal Free Hospital and discontinued because much increased restlessness and vomiting had resulted in cases where they had been used. Scopolamine had recently been added in a few cases, and better results were obtained. Dr. W. J. MCCARDIE considered that the effects of the drugs depended largely on what preparations were used. He found some of the German preparations were far more satisfactory than any of the English ones. He used them when light anaesthesia was required, and found the effect was to deepen the anaesthesia from the surgeon's point of view and to lighten it from that of the anaesthetist. With regard to atropine, he observed that though it was considered generally to stimulate the heart, recent investigations made by Webster of Winnipeg pointed to its producing a paralytic effect on heart muscle.

PATHOLOGICAL SECTION.

Tuesday, March 21st, 1911.

Dr. F. W. MOTT, F.R.S., President, in the Chair.

Thickening of Mucosa of Caecum.

Mr. C. G. WATSON recounted a case of extensive thickening associated with a polypoid condition of the caecum and ascending colon. The muscular wall was involved in the thickening. Clinically the resistance of the gut and the associated obstruction led to the diagnosis of intussusception. The parts were excised. No tubercle bacilli were found, nor were the histological changes those seen in tuberculosis. Although some such cases were instances of hyperplastic tuberculosis, the etiology in the present was doubtful.

Relation of the Meningococcus to Pseudo-glioma.

Dr. COATS and Dr. FORBES recorded observations which showed that the suppuration in the vitreous of children (producing a semblance to the growth of a glioma—whence the name) was due to the meningococcus. The infection occurred by the blood, and not infrequently arose

after measles or whooping-cough. It was only in rare cases that the condition occurred in connexion with cerebro-spinal meningitis. The micro-organism was diagnosed microscopically and by its cultural characters.

The Typhoid-Carrier Rabbit.

Dr. MORGAN related some endeavours to produce typhoid-carrier rabbits by intravenous injection of broth cultures of the typhoid bacillus. In only two animals was the bacillus recovered from the faeces. In one of these the gall bladder was found some time afterwards, infected; typhoid bacilli were present in its walls. The bile from the other rabbits proved to be sterile.

Inhibition of Pigment Production.

Dr. F. W. ANDREWES recorded certain observations showing that inhibition of pigment production in *B. prodigiosus* could be brought about by the simultaneous growth of *B. faecalis alkaligenes*. If colonies of the two organisms grew on the same surface, the *B. prodigiosus* in the close proximity failed to produce its pigment. The importance attaching to the fact was that *B. prodigiosus* was largely used in testing the conveyance and distribution of bacilli, and the diagnosis of the organism depended upon the pigment it produced; if this were inhibited, erroneous conclusions in practical hygiene might result. The pigment formation of *B. pyocyaneus* was inhibited by the same organism.

Dr. H. R. DEAN recounted an elaborate series of observations on the relation of specific precipitation to complement fixation.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

Friday, March 3rd, 1911.

Professor MUIR, President, in the Chair.

Rupture of the Intervertebral Disc.

DR. JOHN H. TEACHER read a paper by Dr. George S. Middleton and himself upon a case of injury of the spinal cord due to rupture of an intervertebral disc during muscular effort.

The patient, a man aged 38, was lifting a heavy plate from the floor to a bench about 3 ft. in height, when he felt a "crack" in the small of his back. He suffered intense pain, and was unable to straighten himself. Paraplegia soon developed, and the patient died sixteen days later, principally from the effects of bedsores and septic cystitis. The cause of the paraplegia was haemorrhage and softening in the lumbar enlargement of the spinal cord, and the cause of this found in a mass of the pulp of an intervertebral disc, which had been displaced into the vertebral canal.

The authors suggested that the case seemed to throw light on certain cases of spinal myelitis and haemorrhage arising out of strains and wrenchings of the back in men engaged upon heavy work. They had been unable, after considerable search in literature and inquiry among pathologists and surgeons, to find any record of an exactly similar case.

X-Ray Treatment of Tinea.

Dr. J. GOODWIN TOMKINSON demonstrated a case of tinea tonsurans treated in the Western Infirmary, where the entire scalp had been epilated at one séance by Kienbock's *x*-ray method. In this there was no variation from Sabouraud's method as regards dose and distance from the source of *x* rays, but the dimensions of the area treated were considerably increased, with a corresponding diminution in the total time necessary for the epilation of the whole scalp.

X-Ray Measurement.

Dr. JAMES R. RIDDELL, in a paper on *x* rays in treatment, insisted on the necessity for administering carefully measured doses only. The pastille methods of measurement devised by Holzknecht and Sabouraud were open to the objection that in order to use them successfully one must be able to appreciate very fine shades of difference in colour; this was easy in good diffused daylight, but difficult in dull weather or sunshine, and in artificial light almost impossible. The method of measurement he recommended for routine work was the use of a milliampèremeter on the tube circuit, and a meter to count the number of *x* ray impulses administered at one sitting. An impulse was originated each time the current in the primary circuit was interrupted; one had therefore only to count the number of revolutions the interrupter made during the course of the sitting. This was done by attaching to the spindle of the revolving interrupter a revolution indicator such as is commonly used on the wheel of a bicycle to record the distance travelled.

A FURTHER meeting on March 17th, Dr. J. M. COWAN presiding, took the form of a demonstration of cases of children's diseases and specimens connected therewith. The latter included the brain from a girl aged 4½ years with tuberculous tumours in the left crus and pons (Dr. R. BARCLAY), and the former (*a*) a girl who in 1905 had been trephined over the middle meningeal region on both sides for extensive compound fracture of the skull, and (*b*) a boy, aged 9, in whom a large gap, resulting from a depressed and comminuted fracture of the vault of the skull, had been repaired by bone grafting; they were both shown by Dr. ARCHIBALD YOUNG. The proceedings also included a lantern and case demonstration of varieties of hare-lip and cleft palate and their operative treatment.

LIVERPOOL MEDICAL INSTITUTION.

AT a meeting on Thursday, March 9th, Dr. T. R. BRADSHAW, President, in the chair, Dr. MACALISTER described two cases of a rare form of *Arthropathy*. The one was a woman advanced in life; the other a child, aged 6. The characteristic features in each were that the knees were dislocated, both the ankles were ankylosed, and there were partial dislocations of both wrists and of the elbows and shoulders; the neck was bent forward and fixed in the case of the woman; the small joints of the hands and feet were similarly affected. The disease in each case began somewhat acutely with fever and swelling of the affected joints. The initial attack was followed, after periods of remission, by other exacerbations, and the dislocation of the joints took place in each case rather suddenly. The change was in its nature an osteo-arthritis, with rarefaction of the bony ends and disappearance of the cartilages. In the case of the child there was a condition of the skin resembling a scleroderma, and the skin over each knee resembled a thin cicatrix. Dr. WARRINGTON pointed out that a sclerosing process affected in the more usual cases the skin only, as in the diffuse form of scleroderma, but that sometimes the muscles were also affected, and in rare cases the bones as well. He alluded to an instance of the latter condition. Dr. BLAIR BELL, in a paper on *Septic puerperal thrombophlebitis of the pelvic veins*, said the diagnosis was the chief difficulty, and the following points should be considered: (1) The late onset, ten to twenty days after parturition, and following a moderate degree of morbidity; (2) rapid rise in temperature and pulse-rate, generally with rigors; (3) mobility of the uterus; (4) absence of pain; (5) dark coloration of the cervix from venous congestion. He also described two cases on which he had operated—the first unsuccessfully, the second successfully. Under expectant treatment of the condition, the mortality was about 65 per cent., but with early diagnosis and operation should be reduced to about 5 per cent. Professor ERNEST GLYNN considered that general pathological considerations justified the operation. Dr. ARTHUR WALLACE spoke in favourable, though guarded, terms of the procedure, whilst Professor BRIGGS held that familiarity with figures and statements concerning the past—peripatetic—methods of treatment in cases of puerperal fever brought out the fundamental difficulty in separating the local from the general infections. He himself was a firm advocate of early local treatment, but believed that on the evidence now available the term "septic thrombo-phlebitis" was misleading, from confusion between the changes in the thrombi themselves and in the surrounding tissues.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

AT a meeting on March 16th, Mr. A. CUFF, President, in the chair, Dr. W. BRANDER, in a paper on the *Clinical value of the pulse pressure range*, defined pulse pressure as the difference between the systolic and diastolic pressure, the physiological and pathological relationship existing between the force and output of the left ventricle and the peripheral resistance. Amongst others, Dawson and Gorham found

that in dogs the pulse pressure varied exactly with the systolic output, not only under normal conditions but during various procedures. The author's many determinations with Erlanger's sphygmomanometer in health and disease included a series of estimations showing the effect of measured exercise on 100 patients with cardiac affections. He drew the following conclusions: (1) It is possible to differentiate arterio-sclerosis of the vessels of the splanchnic area from that confined to the superficial vessels, the former exhibiting a large, and the latter a low pulse pressure. (2) Pulse pressure measurements afford us a help in estimating the loss of vascular tone in arterio-sclerosis and aortic insufficiency. (3) Pulse pressure determinations are a valuable guide in deciding how far the hypertension of kidney disease, arterio-sclerosis and cerebral haemorrhage ought to be reduced. (4) For a better understanding of the complex circulatory disturbances in lobar pneumonia systematic observations are very desirable. (5) By measured exercises we can arrive at a very fair estimate of the functional capacity of the heart and the adequacy of the circulation. (6) In cardiac dilatation from any cause we can often throw light on the complex factors concerned in the production of dyspnoea. Dr. F. J. SADLER, in a paper on *Vaccine treatment of enteric fever*, showed photographs of the temperature charts of cases treated with injections of killed typhoid bacilli during 1910 at the Kendra Hospital, Barnsley. After showing the charts of mild, medium, and severe cases of enteric treated without vaccine in 1909, and with vaccine in 1910, he showed the charts of all the cases which had contributed to establish his present arrangements of doses and intervals between doses, and also the charts of those patients in which the vaccine had failed to give benefit. He claimed that with suitable doses and intervals enteric fever was markedly reduced in severity in all cases except a few of those with bad brain poisoning, provided the treatment was commenced in the first fortnight of the disease. Dr. ARTHUR HALL showed: (1) A case of *Conglomerate acne* due to potassium bromide in a baby, 7 months old, who had been given small daily doses of a patent soothing mixture during a period of three weeks. The drug was at once stopped, but further spots continued to appear in large numbers for over five weeks, as commonly happens in cases of bromide eruptions in infants. (2) A case of *Pneumococcal peritonitis* in a little girl, which had been diagnosed as tuberculous, allowed to burst at the umbilicus. This was followed by uninterrupted recovery. Gram-positive diplococci were found in the pus. (3) Two cases of *Recurrent cholaemia* with splenomegaly of family type. The patients were mother and son, aged 46 and 24, each subject throughout life to recurrent attacks of jaundice. Another son who only lived one year was similarly affected.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.

AT a meeting on March 15th, Mr. W. MORLEY WILLIS, President, in the chair, Dr. SARAH GRAY, in a paper read in her absence by Dr. AMELIA LE PELLEY, said there were two types of dysmenorrhoea—spasmodic and congestive. In the former there were waves of pain preceding the flow and lasting from a few minutes to several days. This type was associated with an infantile uterus, anteflexion, and sterility, and was generally cured by pregnancy or artificial dilatation of the cervix. In the congestive type, pain was different, being of a constant, heavy, dragging type and preceding the flow; this type was more common in multiparae, in cases of retroflexion of the uterus, and where organic disease of the pelvic organs was present. Dr. H. MICHIE thought that where there was no disease of the appendages the condition of the uterus was responsible for dysmenorrhoea. The chief conditions leading to it were retroflexion, anteflexion, occasionally stenosis of the os, polypus of the cervical canal, and myomata. Drug treatment was only palliative, while surgery made an attempt at a radical cure. His practice was to improve the general health as far as possible and give ergot when the flow was excessive. For the actual pain, antipyrin, phenacetin, and even opium might be tried, but alcohol should never be given. He also advised dilating with Hegar's dilators to No. 12 or 14, and curetting any granulations which might be present. Malpositions of the uterus should be corrected by means of pessaries. In membranous dysmenorrhoea the endometrium should be swabbed with chromic or weak nitric acid. Mr. R. G. HOGARTH thought it difficult to dilate with Hegar's dilators beyond No. 8 without tearing the cervix. He advised cutting through the posterior lip of the cervix and permanently enlarging the canal by removing a wedge-shaped piece and uniting the edges to the vagina. For membranous dysmenorrhoea he urged supravaginal hysterectomy as the only safe cure.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

AT a pathological meeting on March 3rd, Dr. J. B. HELLIER in the chair, Mr. A. S. GRÜNBAUM and Dr. H. G. GRÜNBAUM made a communication on *Inhibition of growth of inoculable tumours* in rats, showing, among other things, that antivenom serum caused almost invariably regression of growths which were within a certain size limit at the time of its injection. An apparent antagonism between tumour growth and immunization to cobra venom was also described. The same authors also gave an account of the human *Pituitary gland* based on the examination of over fifty specimens. They showed that the colloid material does enter the blood vessels, and drew attention to the frequent occurrence of multinuclear areas in cases of malignant disease. Dr. MYER COPLANS showed specimens of a *New culture medium* as a means for the readier recognition of *B. diphtheriae* in sub-cultures from swabs of suspicious nose and throat cases. It was made as follows: To sheep's blood serum to which there has already been added 1 per cent. glucose—acid producer—and 1 per cent. of ½ per cent. aqueous solution of neutral-red indicator (this preliminary combination being denoted as "S") there is added, either singly or in combination, one or more of the following salts: (A) Potassium sulphocyanide 1 per cent., (B) potassium ferrocyanide 2½ per cent., (C) potassium ferricyanide 1 per cent., (D) boric acid about 1 per cent. The medium on coagulation and inspissation should be faint primrose-yellow in colour, the reaction being faintly alkaline. The sheep serum is best pipetted off from recently drawn clotted blood and then allowed to stand in a refrigerator for three days in order to eliminate red corpuscles by sedimentation, only the supernatant liquid being finally utilized. With combination S A, *B. diphtheriae* grows red with a bluish-pink tint, diffusing through the medium in all directions; *B. hoffmann* grows yellow, with yellowish diffusion; some varieties of staphylococci simulate *B. diphtheriae* on culture, but on further incubation the tint does not intensify as with *B. diphtheriae*, and should be readily distinguished; *B. subtilis* grows brownish; *B. megatherium* and torulae grow as faint pinkish-white colonies, which are raised; streptococci grow apparently colourless. Combinations S A B, S B, and S D in particular show up to advantage the reddening and bluish-pink diffusion brought about by *B. diphtheriae* as compared with various staphylococci. It was stated that confirmation as to the diagnostic value of the combination S A had been furnished by Dr. C. Rankin (Senior Assistant Medical Officer to the Leeds City Fever Hospitals) who has used the medium in more than a thousand cases as a test for the absence of *B. diphtheriae* from the nose and throat in patients already convalescent from the disease as a preliminary to their discharge from hospital. Suitable control measures had been carried out all along, and, as a result of this experience, it was considered possible to adopt the dictum, "No red coloration, no *B. diphtheriae*," seeing that there had not as yet been a single exception to the rule. The test was by means of the naked eye, and the labour of microscopic examination was greatly reduced, since it was possible, after a short experience, to distinguish readily at a distance the various tints produced, either from the front or back of the changed medium. In case of doubt, further incubation intensified the tints and facilitated the naked-eye diagnosis. These results were part of a research to determine the effect of salts of saliva on the growth of mouth and intestinal organisms in nutrient media.

Reviews.

SCIENTIFIC TREATMENT OF CHOLERA.

His extensive experience of the disease in Calcutta makes Professor Leonard Rogers particularly well equipped to write on *Cholera and its Treatment*.[1] In cholera there is a remarkable loss in the fluid content of the blood. In mild cases, the author finds, the loss of serum amounts to 35 per cent.; in moderately severe cases it is 52 per cent., and in the most severe fatal cases it amounts to 64 per cent. These observations have been made by means of the haematocrite. A simpler method, which yields parallel results sufficiently accurate as a guide to treatment, is to determine the concentration of the blood by taking its specific gravity. This can be done at the bedside, and thus has the advantage of not necessitating resort to a laboratory. Professor Rogers uses for the test a series of bottles containing aqueous solutions of glycerine ranging in specific gravity from 1040 to 1076. By placing small drops of blood in the bottles and observing whether they rise or sink the specific gravity may be determined in about two minutes. Of the results of his observations he says:

> In the acute stages of the disease the specific gravity nearly always varies between 1060 and 1072 in natives of India, in whom the normal figure in health is about 1054. I have seen it as high as 1076, but only in extremely severe cases. The most common point is about 1063 to 1065, which means a loss of about half the fluid from the blood, and is nearly always accompanied by general symptoms indicating the necessity for transfusion.

Another fact of the highest practical importance is that in the blood of cholera patients there is a loss of salts as well as a loss of fluid. In the most severe cases, in which about two-thirds of the plasma had been lost,

> the chlorides in the serum were slightly lower than normal, instead of being three times as great as would have been the case if no salts had disappeared from the circulation.

Equally important is the estimation of the blood pressure by means of a mercury sphygmometer. Professor Rogers's observations have been made chiefly in Calcutta on native patients whose normal blood pressure is only from 100 to 120 mm. In the majority of cholera cases he has found the pressure at the wrist on admission to hospital to be below 70 mm.; it is often as low as 50 or 60 mm, and in extreme collapse

> it is too low to be measured at all at the wrist, such cases forming over one-third of the admissions to Calcutta hospitals.

By adopting a system of treatment based on his scientific observations, the author has succeeded during the last three years in reducing the death-rate of his cholera cases by one-half, or even more. Whenever collapse occurs, with a blood pressure below 70 mm., he replaces the lost fluid and salts by a hypertonic saline intravenous injection of sufficient amount to raise the blood pressure as nearly as possible to normal. It is particularly important to use a hypertonic solution, since so-called "normal" saline, containing only 0.65 per cent. of sodium chloride, would tend to lower the percentage of salts in the blood, leading to a further escape of liquid and the immediate reappearance of copious evacuations and renewed collapse.

> By the use of hypertonic solutions, on the other hand, the saline content of the blood is immediately raised very considerably, with the result that the osmotic currents will tend to carry more fluid into the blood rather than to allow it to escape from it, and thus the diarrhoea is checked instead of encouraged, as by normal salt solutions.

The solution he recommends contains, per pint of water, 120 grains of sodium chloride, 4 grains of calcium chloride, and 6 grains of potassium chloride. Intravenous injection, whenever practicable, is better than either subcutaneous or intraperitoneal. As to the amount to be injected, if the specific gravity of the blood is over 1063 four pints may always be given to an adult, and if this has not diluted the blood to the normal point, an additional pint may be run in at a slow rate.

In addition to saline injections, Professor Rogers attaches much importance to free administration by the mouth of oxidizing agents, for the purpose of destroying the toxins which are being formed in the gastro-intestinal tract. Immediately on admission he gives a pill containing 2 grains of potassium permanganate every quarter of an hour for two hours, and then one pill every half-hour, any pills rejected by the stomach being replaced without delay. The pills are continued until the stools become green and less copious, a result usually attained with this treatment in from twelve to twenty-four hours. The patient is also allowed to sip a weak solution (1 to 6 grains per pint) of calcium permanganate. With regard to the safety of the above dosage the author says:

> I have given over 50 grains of permanganates by the mouth within twenty-four hours in cholera cases without the slightest harm, and intend to use still larger amounts in severe cases in future.

As it is not impossible that cholera may make an early reappearance in this country, medical practitioners and public health authorities would do well to make a careful study of Professor Rogers's book. It will be read with pleasure; it is simple, direct, and practical, and is of equal interest to the pathologist and the clinical physician, who will both find in it a model of what clinical research ought to be—science applied to therapeutics.

There is plenty of room for expansion, and in the next edition we should like to see the book considerably enlarged, with a much more detailed account of what is known about the bacteriology of the cholera vibrio.

[1] *Cholera and its Treatment.* By Leonard Rogers, M.D., F.R.C.P., F.R.C.S., B.S., I.M.S. London: Henry Frowde, and Hodder and Stoughton. 1911. (Demy 8vo, pp. 236. 10s. 6d. net.)

HEATSTROKE.

Remembering our chilly summers, to review a book on the nervous system and insolation[2] might almost appear to home-dwelling members to be a work of supererogation; but there are many in other parts of the British Empire who will read Dr. Steinhausen's monograph with the interest which familiarity ensures. He first gives an interesting historical survey of the subject, pointing out the great variety of clinical forms in which heat-trauma occurs, and identifying sunstroke with heatstroke for all practical purposes. Clinically speaking, heat exhaustion ends and heatstroke begins when consciousness is affected and mental confusion occurs; frontal headache, feelings of depression, and various sensory auras may be noted as warnings before the onset of the stroke itself. In nearly half of the 449 cases which afforded the materials for his conclusions the temperature was not within the first hour of the onset raised above 39° C.; in the rest it varied from 39° to 43.4° C. Dr. Steinhausen does not believe that heatstroke ever occurs without elevation of the body temperature. He divides his cases into six groups, as follows: (I) Cases without impairment of consciousness, which are really instances of heat-exhaustion rather than of heatstroke; the affection is mild, and never fatal. (II) Comatose form; 80 cases with 3 deaths; the coma usually begins gradually, and may be interrupted by intervals of mental confusion. (III) Epileptoid or convulsive form; 118 cases with 9 deaths; in some instances the fits seem to be hysterical. (IV) Delirious form; 103 cases with 31 deaths; the delirium may take on many forms, and the high mortality of heat delirium has often been noted. (V) Encephalitic form; 60 cases with 4 deaths; non-purulent encephalitis, due to heatstroke, and often haemorrhagic, is, the author maintains, a definite pathological entity, giving rise to such various symptoms as hemiplegia, paraplegia, monoplegia, optic neuritis, aphasia, ataxia, in accordance with the main incidence of the cortical lesion. (VI) states of mental confusion (*Dämmerzustände*), 32 cases with 1 death, similar to those that often precede forms III or IV, and described by other authors as instances of transitory mania, amentia, *délire onirique*, pseudo-stupor, etc.; the confusion rarely lasts for more than a day, and is followed by amnesia for the events that occurred while it lasted. In all these forms of heatstroke the onset is usually sudden and immediate; relapse may occur, and mental depression or apathy is common during convalescence, with increased suggestibility. The author finds that 333 of his 449 patients recovered, 48 died, and 68 were discharged uncured; death occurred within

[2] *Nervensystem und Insolation: Entwurf einer klinischen Pathologie der kalorischen Erkrankungen.* Von Dr. A. F. Steinhausen. Bibliothek v. Coler—v. Schjerning. Band XXX. Berlin: A. Hirschwald. 1910. (Demy 8vo, pp. 231. M. 5.)

from three hours to six days, usually within five to twelve hours. The uncured cases suffered from sequelae such as functional heart disease, chronic anaemia, various forms of neurosis, psychosis, or dementia, which might not come on for some weeks or months, and are considered in detail by Dr. Steinhausen. In general, three-quarters of the cases (and 96 per cent. of the fatal cases) occurred from direct exposure to the rays of the sun; the author has little to say about the influence of alcohol in promoting the occurrence of sunstroke or heatstroke; only 37 of his own patients gave histories of recent or chronic alcoholic excess. The diagnosis, prognosis, prophylaxis, and treatment of the condition are briefly considered. The book is well written and well arranged, and may be recommended to the attention of all practitioners in hot climates; several hundred references to the literature are given.

OLD AGE.

PROFESSOR SCHWALBE of Berlin, the editor of a textbook of the diseases of old age,[3] echoes the complaint of Constatt (1839) that little is written upon this subject as compared with the flood of literature on diseases of women or of children, but he admits that many valuable contributions have been made, mentioning especially the late Dr. G. W. Balfour's monograph on the senile heart. At the time he planned this work Professor Schwalbe knew of no systematic treatise later than that of Charcot (second edition, 1874); since then Rauzier's book (*Traité des maladies des vieillards*, Paris, 1909) has been published. He is disposed to attribute this paucity of books on the subject either to the prevalence of the view that old age is not so much a disease as an inevitable change, which no medical art can oppose successfully, or to the circumstance that those who know most about the subject share to some degree in the want of elasticity and depressed vitality characteristic of that period of life. *Senectus ipsa morbus* may be pleaded as an excuse for the negative attitude of practitioners who are contented to shrug their shoulders with a sympathetic remark about Anno Domini, or a hint that the patient is breaking up. Still, in the opinion of the editor, old age presents peculiar types of disease as well as special forms in which diseases occur. Arterio-sclerosis, senile dementia, and senile pruritus are given as instances of the former, and pneumonia, typhoid fever, and cancer, of the latter. He quotes with approval the saying of Erasmus, that "old age is a heavy burden on the dying as inevitable as death itself," but medical aid may often postpone its beginnings and alleviate its troubles. Professor Schwalbe has enlisted the assistance of thirteen of the most eminent authorities in Germany as his co-workers. We may mention Professor B. Naunyn, Professor C. A. Ewald, and Professor W. Ebstein. Professor Naunyn's introductory chapter on general pathology attempts to describe—for he will not define—what is meant by old age, and he gives the following morbid characteristics: (1) Diminished resistance to all external noxae; (2) impaired functional activity of the various organs; and (3) special organic diseases peculiar to that period of life. He expresses no decided opinion as to the truth of the suggestion that the intestinal poisons are less thoroughly destroyed in the body, or imperfectly excreted, and so are free to exercise their poisonous properties to a greater extent than earlier in life; but he is sure of the influence of the mind on the body, and believes that so long as the mind keeps fresh the body retains its vigour. He urges that interest in work, sound sleep, moderation in the use of tea, coffee, alcohol and tobacco, care in diet, the regulation of the bowels, with "perhaps occasionally a little wine to aid digestion," make up the best general measures for maintaining health in old age. On the whole, we find the book unduly long. Its size (over 900 pages) is attained by including a description in systematic fashion of practically all diseases irrespective of their special relation to advanced age, nor are these descriptions limited to those features which are peculiar to advanced age. As of special interest, we would draw attention to the articles on digestion, metabolism, nervous diseases and skin diseases, that on nervous diseases by Professor Siemerling being especially worthy of note.

[3] *Lehrbuch der Greisenkrankheiten.* Herausgegeben von Professor Dr. J. Schwalbe, Berlin. Stuttgart: Ferdinand Enke. 1909. (Sup. roy. 8vo, pp. 934. M. 26.)

OPHTHALMOLOGY.

COLONEL HENRY SMITH, of Jullundur, is so well known to the whole world of ophthalmology as the champion in recent years of the operation for removal of cataracts in their capsule, that a book he has recently published on *The Treatment of Cataract*[4] is likely to be read with unusual interest. In it we find his method of operating carefully described, together with a description of the more usual method of extracting the lens from within the capsule. The book is the result of his experience after operating on upwards of 24,000 cases, and if we say that this is a record for any one man, probably no one will challenge the statement. The book consists of only 121 pages, and the last few are devoted to an appendix by Captain A. E. J. LISTER, I.M.S., who gives certain details, and after-results of the cases which could be traced. It is profusely illustrated by drawings originally sketched during the operations by Dr. Derrick T. Vail, of Cincinnati. They show the details of the operation, and are reproduced as special plates. The question of removing the lens with the capsule or without it resolves itself into one of expediency, for all will agree that if we can safely get rid of the capsule the eye is far better without it, "after-cataracts" would be abolished, and whether we agree with Colonel Smith that iritis following the usual operation is due to the presence of capsule or lens matter in the eye or not, yet all will acknowledge that the inclusion of capsule in the wound is the cause of most of the complications after an ordinary successful operation. It may be taken for granted that Colonel Smith is the most experienced and no doubt the most skilful operator by his method, but even he admits that loss of vitreous is more common than in the more usual operation, and it is obvious that this must be so; nevertheless he fears it not a bit, for he finds that loss of vitreous from a trace up to about one-third makes very little difference to the subsequent result. Thus in five cases in which the largest amount of vitreous was lost, in only one was the vision as poor as $\frac{6}{9}$, while one had $\frac{6}{6}$, one $\frac{6}{5}$, and two had $\frac{6}{4}$. Such results may be described as perfect. The one thing upon which Colonel Smith insists is that the operator must virtually be trained by himself, and not the operator only but the assistant as well, for he takes a far more important part in the operation than in any other method. Many surgeons have tried to extract lenses in their capsule and have made miserable failures of it, and have condemned "Smith's" method accordingly, but he will have none of it, and flatly refuses to consider that an operator who has not seen him operate and been instructed by him can possibly operate by his method. It is a far more difficult operation than the ordinary extraction, and every detail is of importance. All will agree that the removal of the lens and capsule is the ideal method, but the fact remains that we are unacquainted with any European operator who thinks it sufficiently safe to do it habitually, and no doubt for the present the ordinary operation will claim the greater number of adherents. The book is produced in India, and we cannot congratulate the printer on the excellence of his work, while numerous errors of spelling, etc., should have been noted by the proof reader; certain places give almost the impression that the proof has not been read at all. The text is most interesting, and we can strongly recommend its perusal to all those who are interested in ophthalmic surgery.

The *Handbook of Diseases of the Eye*,[5] by Dr. CURT ADAM, the translation of which (from the second German edition) has been made by Drs. W. G. SYM and E. M. LITHGOW, is written especially for surgeons in general practice who frequently come across more or less serious affections of the eye but are not specially skilled in this line of practice. We consequently find that the diagnosis and treatment of the ordinary diseases are pretty fully gone into, while the more uncommon diseases are much less fully described; many, indeed, are only just

[4] *The Treatment of Cataract.* By Lieutenant-Colonel Henry Smith, B.A., M.D., M.Ch., I.M.S. With Appendix by Captain A. E. J. Lister, M.B., B.S., F.R.C.S., I.M.S. Illustrated by Dr. Derrick T. Vail, Professor of Ophthalmology, University of Cincinnati. Calcutta: Thacker, Spink, and Co. 1910. (Demy 8vo, pp. 129.)

[5] *Handbook of Treatment for Diseases of the Eye (Ophthalmic Therapeutics).* By Dr. Curt Adam (Berlin). Translated from the Second German Edition (1910), by W. G. Sym and E. M. Lithgow (Edinburgh). London: Rebman, Limited. 1911. (Roy. 8vo, pp. 264; 36 illustrations. 10s.)

mentioned. Scarcely anything is said concerning the ophthalmoscope, or of diseases requiring its use for their detection; but detailed directions are given of such things as the passage of probes down the nasal duct, a procedure of which the author would seem to approve. The chapter on refraction is one of the most unsatisfactory in the book, and really amounts to advising the surgeon to order the glasses with which the patient says he can see best. It requires no special training to know how useless it is for any one to imagine that refraction work can be done in this manner. A very curious statement is made when speaking of artificial illumination. "Incandescent gas stands next to daylight, and evolves only half as much heat as the incandescent electric light, but it consumes oxygen and gives off carbonic acid." A chapter at the end is devoted to prescriptions, in which the translators have, for the convenience of the English reader, given the amounts of the different drugs in grains, drachms, ounces, etc. The book is a useful addition to the list of those devoted to therapeutics, and is not of such an unwieldy size as some of those we have seen.

The thirtieth volume of the *Transactions of the Ophthalmological Society of the United Kingdom*[6] is in size and appearance like its predecessors. It contains the presidential address given by Dr. George Berry in October, 1909, as well as a number of interesting papers and descriptions of rare cases read or shown before the society during the session. One of the most important papers is that by Colonel Herbert describing a small flap operation for glaucoma, now usually known as Herbert's sclerotomy, being very largely practised with excellent results. It has for its object the making of a small filtering scar. Mr. Bishop Harman and Mr. Priestley Smith describe interesting family histories of cases of peculiar cataract; and there is a long paper by Mr. W. M. Beaumont on oxycephaly. The whole volume is, as usual, well got up, and contains much of interest not only to the ophthalmic surgeon but also to the physician and general surgeon.

HEREDITY.

IT is a pleasure to welcome a book such as Dr. C. E. WALKER'S *Hereditary Characters*.[7] The subject has called forth a small shoal of books, but none will be read with more interest than the present one. Dr. Walker is the director of research in the Glasgow Cancer Hospital, and the author of *The Essentials of Cytology*, and he has the advantage over many biologists of a knowledge of cytology, which is the starting point of all discussion on the subject of heredity. To this he has added a wide knowledge of general biology, and a wider acquaintance with the literature dealing with the matter in hand. The book is not merely an interesting compilation of recent work; it is an able critical review, to which the author has contributed much that is illuminating and not a little that is new. His style and method of treatment are clear, direct, and almost invariably convincing. Amongst the number of fresh points of view skilfully introduced perhaps none will arrest greater attention than the theory, which, if not absolutely novel, is yet here emphasized for the first time—that hereditary characters are divisible into two categories, individual and racial, and that to each must be attributed a different mode of transmission. On such a hypothesis much that has hitherto baffled interpretation, and much that has upset Mendelian prognostication, may receive explanation. On general grounds alone the theory commends itself, for it is obvious that there are on the one hand characters which are transmitted through an extended series of generations without appreciable change, while on the other are such as constantly vary from parent to offspring. At the same time it must appear that the comparatively stable racial characters have been derived from the less stable hereditary characters on the assumption that evolution has proceeded by the natural selection of variations. The author, like Dr. Archdall Reid, is a close adherent of Darwin's original theory of natural selection, and rejects unhesitatingly the mutation theory of De Vries. In regard to the part played in hereditary transmission by the various constituents of the cell, Dr. Walker differs from what are generally regarded to be well-established views. Hitherto the opinion has found general acceptance that the nucleus is the chief or exclusive bearer of hereditary qualities, but several facts are put forward as evidence that to the cytoplasm must also be ascribed an important part in conveying hereditary characters. There is not wanting proof that the nucleus is the bearer of individual characters, but "nothing like a demonstration as to the nature or situation in the cell of the substance that carries the *common* hereditary qualities has yet been made." In considering the mental qualities of man, the author takes the view:

> that almost all are acquirements, and that very little besides consciousness, memory, capacities for making various acquirements and a few instincts is inborn. All the other characters are acquirements dependent upon the existence of consciousness and memory in the individual.

It is important to keep in mind this distinction between the capacity for an acquirement and the acquirement itself. In discussing the subject of adaptation, the inadequacy of the mutation theory in this respect is insisted on. Whatever the results of mutations may be, they are not, as a rule, the basis of evolution. A favourable mutation might possibly be preserved, but under natural conditions this could happen but rarely. No analogy, it is argued, can be drawn between domesticated and natural races. Man is able to select mutations, to preserve them, and at the same time to dispense with the necessity of accurate adaptation. Throughout the remainder of the book the author is in close agreement with Archdall Reid, and he arrives at many of the same conclusions as the latter has stated in his recent *Laws of Heredity*, which, however, had not been published at the time that Dr. Walker's book went to press. The conclusions must therefore be regarded as having been arrived at independently.

[6] *Transactions of the Ophthalmological Society of the United Kingdom.* Vol. xxx. Session 1909-10. London: J. and A. Churchill. 1910. (Medium 8vo, pp. 493. 12s. 6d.)

[7] *Hereditary Characters and Their Modes of Transmission.* By C. E. Walker, M.Sc., M.R.C.S., L.R.C.P. London: Edwin Arnold. 1910. (Demy 8vo, pp. 251. 8s. 6d.)

NOTES ON BOOKS.

THE monograph in which Dr. MAURICE CHIBRET[8] advocates the use of magnesium chloride in small doses as a remedy for constipation is worthy of attention although it may by some be regarded as a plea *pro domo suo*, Dr. Chibret being a physician practising at Chatel-Guyon. This salt is not mentioned in the *British Pharmacopoeia* or in the British Pharmaceutical *Codex*, but in Martindale and Westcott's *Extra Pharmacopoeia* the dose is said to be from a ½ oz. to 1 oz.; the dose advocated by Dr. Chibret is much smaller, ½ drachm to 1½ drachms taken in half a pint of hot water, and he finds it valuable for the treatment not only of constipation but of various stomach derangements. In his historical retrospect he shows that the salt had a reputation in former days which it has lost, and he quotes from Sinclair, who, in his *Principles of Hygiene*, writes: "I have frequently seen artificial seawater made with the muriates of magnesia and potash succeed admirably for certain dyspeptic symptoms which had resisted other stomachics," and a letter from Piorry to Lebert, written from Edinburgh, contains the following interesting statement: "In his course of Materia Medica which I followed at Edinburgh in the winter of 1821–2 Dr. Home recommended the muriate of magnesia in dyspepsia and stomach disorders." Magnesium chloride is an important constituent of the waters of Chatel-Guyon, Homburg, Kissingen, and Monte Catini. It is a salt which has undoubtedly been neglected and would probably prove useful as a mild stomachic aperient, its pleasantness would be enhanced if it could be supplied in an effervescent form, and administered in doses of one or two teaspoonfuls dissolved in half a pint of hot water.

[8] *De l'emploi thérapeutique du chlorure de magnesium administré a faibles doses.* Par le Docteur Maurice Chibret. Paris: G. Steinheil. 1910. (Double Cr. 8vo, pp. 136.)

THE annual report of the Nurses' Co-operation for 1910 shows that the gross receipts from patients amounted to £46,359, of which £43,692 were paid to the nurses. The balance, *plus* the invested capital of the co-operation, sufficed to pay all the working expenses and to leave a surplus of £256.

THE NEW EDITION OF THE GERMAN PHARMACOPOEIA.

THE publication of a new pharmacopoeia must always be a matter of much interest to both medical practitioners and pharmacists in the country to which it belongs; the former, while free to order unofficial drugs at will, see in the pharmacopoeia an indication of what the appointed professional authority and the majority of practitioners deem worthy of official recognition, and what combinations or preparations of particular drugs can be obtained of uniform composition by ordering a single remedy. Pharmacists, who are bound by the directions of the pharmacopoeia in regard to the composition, strength, and purity of all the medicines therein described, have an even greater concern in the changes which are made when it undergoes its periodical revision. The interest in any given pharmacopoeia is necessarily less outside the country in which its provisions are binding; but science, industry, and commerce are so largely international that the progress in medicine and pharmacy in one country, as registered in the differences between two successive editions of its national pharmacopoeia, is roughly representative of the progress in the same direction in any of the countries of Western civilization. The fifth edition of the *Deutsches Arzneibuch*[1] (the German pharmacopoeia), which came into force on January 1st of this year (exactly ten years after the fourth edition), is perhaps of more than usual interest in this country from the fact that it is the second edition of the German to appear since the last revision of the *British Pharmacopoeia*, and that a new issue of the latter is to be expected before long.

While the compilation or revision of a pharmacopoeia necessarily entails the work of both medical men and pharmacists, great variations are possible in the way in which their collaboration is secured; and the merits or otherwise of the production are likely to depend a good deal on the proper allocation of the different kinds of work and on the nature of the authority ultimately responsible for it. The Pharmacopoeia Commission created in Germany in 1887 has now ceased to exist, and the production of the present book has been undertaken by the Health Council of the Empire (*Reichs-Gesundheitsrat*), acting through a committee divided into medical and pharmaceutical subcommittees. This committee consisted of twenty-six members, representing clinical and practical medicine, pharmacology, applied chemistry, pharmacy, pharmacognosy, and bacteriology. All new matter useful in the revision which has been published anywhere since the work on the fourth edition was completed has been collected and utilized; medical and veterinary practitioners and pharmacists have been invited to contribute information and suggestions; the special requirements of the army and navy have been taken into consideration, and the pharmacopoeias of other countries which have appeared since the fourth German—twelve in number—have also been utilized.

From whatever point of view the fifth edition of the German pharmacopoeia is regarded, most of the changes which distinguish it from the fourth appear to be improvements. There is a net increase of forty-four in the number of articles included; the additions include many galenical preparations and also a large number of synthetic organic compounds. In connexion with the latter a new departure has been made which will occasion some surprise, and which is not likely to be followed in this country; this is the inclusion of such compounds under trade-mark names which are the property of particular firms, thus giving official recognition to some one brand of a substance, to the exclusion—more or less complete—of the similar product of competing makers. Such exclusion may be less than complete, as official recognition is given also to chemical names, and it will be possible, therefore, to order the various substances by these; but in many cases the length of the chemical name is a guarantee that it will not be used. The trade-mark name is given as the principal name in some cases, and as a second name in others—for example, one monograph is headed "novocain," with "p.-aminobenzoyldiaethylaminoaethanolum hydrochloricum" as subsidiary name; another is headed "acidum diaethylbarbituricum," with "veronal" as subsidiary name.

The additions and deletions reveal some considerable differences between German and British prescribing, several drugs or preparations which have long been in regular employment here being now accorded official recognition in Germany for the first time. Such are calcium hypophosphite, gallic acid, liquid extracts of cascara sagrada and cinchona, and white and yellow vaseline; on the other hand, colchicum wine, ipecacuanha wine, hydrobromic acid, solution of ammonium acetate, and lithium salicylate, are now omitted. Most of the new substances added, however, are of fairly recent introduction in both countries. Besides the synthetic organic compounds already alluded to, two organic combinations of silver, the proteinate (protargol) and colloidal silver (collargol) have been added: collemplastra, plasters with caoutchouc base, which are a good deal used here, but are not official, are made into a separate group, and a new plaster containing zinc oxide introduced; new arsenic compounds are represented by sodium arsanilate (atoxyl) and acetyl-arsanilate (arsacetin); arachis oil, sesame oil, phenolphthalein, and physiological saline solution are among the other additions. None of the deletions except those named above are of much interest in this country.

Serum-therapy was recognized in the fourth edition by the inclusion of antidiphtherial serum; the monograph on this is now somewhat extended, and is followed by a new one on antitetanic serum. It is stated that these serums may only pass into commerce after having been tested at the Royal Prussian Institute for their content in immunization units and antitoxin units respectively, for the absence of organisms, and for the amount of the preservative present; the monographs are therefore chiefly descriptive, with directions for storing. Tuberculin now appears with the name "Old-Tuberculin," and with a similar restriction that it is only to be supplied after testing at the Royal Prussian Institute for Experimental Therapy; the monograph is much extended, and detailed directions are given for the preparation of dilutions. Koch's new tuberculin is not included.

In the monographs on drugs and chemicals there is a very marked increase in the application of tests for purity and strength, and in the precise definition of the way in which the tests are to be applied. The percentages of active constituents or pure substance which are to be present are now stated clearly, instead of being involved, as formerly, in the limits of some more or less intricate assay process; similarly, the impurities which are required to be absent or not to exceed certain limits are stated instead of being merely implied. The microscopic characters of all the chief vegetable drugs are given in some detail, and sophistication of the drug when in powder is further guarded against by giving limits for the amount of ash which may be present. The appendix of the book contains sections on test solutions and reagents, with various tables, and in addition there is a new section on reagents for urine testing and blood testing, etc., and bacteriological stains. The book will no doubt receive in this country—at least until the publication of the next *British Pharmacopoeia*—the attention due to the thoroughness and care with which the revision has evidently been carried out.

[1] *Deutsches Arzneibuch.* 5 Ausgabe, 1910. Berlin: R. v. Deckers Verlag. 1910. (Roy. 8vo, pp. 680. Paper covers, M.3.90; bound, M.5.70.)

THE Association of German Scientists and Medical Practitioners will hold its eighty-third annual meeting this year at Karlsruhe, September 24th to 30th.

ON the application of its governors, His Majesty the King has accorded permission to add the word "Royal" to the present title of Sunderland Infirmary, which henceforth will be known as "The Royal Infirmary, Sunderland."

AT the thirty-third annual meeting of the Home Hospitals Association on March 24th Sir Henry Burdett, who was in the chair, said that Fitzroy House, the society's institution for paying patients, was the pioneer nursing home in the country. Last year the average stay of each patient was only sixteen days, or five less than the average for acute surgical cases in the best general hospitals. That fact spoke volumes for the hygienic condition and good management of the home. During the year as many as 78 members of the medical profession had found in it all they required for their cases.

CAMBRIDGE HOSPITAL FOR SPECIAL DISEASES.

On several occasions we have called attention to the work that is being done in the Research Hospital of the Committee for the Study of Special Diseases at Cambridge.* It may not be out of place briefly to recall the circumstances which led to the foundation of the hospital. The Committee for the Study of Special Diseases was founded a little more than five years ago. Its members are Sir Clifford Allbutt, Professor Osler, Sir William Church, Sir Jonathan Hutchinson, Sir Richard Douglas Powell, Sir Henry Morris, Sir W. Watson Cheyne, Professor Howard Marsh, Sir Thomas Barlow, Sir Victor Horsley, and Sir Donald MacAlister. The objects for which the hospital was established are clearly set forth in an appeal on its behalf issued by the Committee some years ago. In that appeal it was pointed out that: "Much and fruitful research has been done in acute diseases, but there are many chronic and widespread maladies which have not yet received the attention they deserve. These, though not commonly immediately fatal to life, incapacitate the sufferer from active work, cause great pain and misery, and finally leave the victim helpless and entirely dependent on the kindness and charity of his friends or of strangers. Patients suffering from these diseases, owing to the slow progress and long continuance of their illness, are not suitable for reception into general hospitals, which as a rule (and rightly so) admit by preference cases of the more acute diseases. The mode of origin or progress of these affections is very imperfectly known, and little therefore can be done in the way of their rational treatment. The great need of scientific research on these chronic diseases has been strongly felt by the medical profession for many years."

The diseases which the Committee had in mind had not attracted the serious attention of the pathologist till lately, while to the physician they were unsatisfactory as offering no field for brilliant efforts of curative skill. They were mere wastes of dullness unrelieved by scientific interest, or in too many cases uncheered by the hope of effecting much good. To the sufferers themselves, however, they mean virtual loss of all enjoyment in life, and, in the case of persons who have to earn their living, disablement from active work and consequent dependence on public or private charity. And public charity is seldom available, for it is already overtaxed by the burden of cases calling for immediate treatment if life is to be saved and the worker restored to usefulness. Yet nothing can be more pitiable than the state of the victims of one of these chronic diseases, such as rheumatoid arthritis. Their condition may be one of almost ceaseless pain, making life an almost uninterrupted torture; yet to those about them they are a burden made all the heavier by the monotony of an indefinite continuance. Even to those who devote their lives to the relief of suffering out of a spirit of Christian charity or of humanitarian altruism, such patients are necessarily a severe trial. We have seen the life of a wife or daughter sacrificed to the invalid, whose misery frequently makes him irritable, selfish, exacting in his demands to the verge of tyranny, and withal ungrateful. In such cases the vitality of the attendant is slowly sapped by the patient as by a deadly parasite. These tragedies of the sick-room arouse no sympathy outside because life is not directly threatened; nevertheless, they are as distressing to those who understand them as the more sensational dramas of disease in which the battle is waged against death.

The work of the Cambridge Hospital for Special Diseases has therefore little in it that appeals to the public mind. There is not the sentimental element that so powerfully helps hospitals for children and consumption hospitals, nor is there what we may call the element of activity as shown by the statistics of cure given in the reports of general hospitals. The work of the Hospital for Special Diseases lies in obscure and inglorious ways. None the less it is doing a work of pre-eminent importance to mankind, and the results already obtained by the careful observation of the few cases its limited resources have allowed it to deal with, have fully justified the hopes of those to whose humanity and zeal in the furtherance of knowledge likely to benefit humanity it owes its foundation.

Fig. 1.—South-east Elevation.

At present the hospital is lodged in a small private house containing four bed for patients. We may justly feel proud of the fact that it is for the most part by subscriptions from members of the medical profession itself that so far the institution has been supported. A *Bulletin* giving the results of the work of the staff is issued from time to time. If it cannot be said that any great advance in knowledge has yet been made, it may fairly be claimed by the workers that they have prepared the way for further investigations by the removal of misconceptions and the destruction of erroneous theories. To use a phrase of Francis Bacon, if the work has not yet been directly *frugiferum*, it has been to a considerable extent *luciferum*.

We consider it in the highest degree important that the sphere of observation which the hospital affords should be enlarged and that the scope of its work should be widened.

*BRITISH MEDICAL JOURNAL, November 16th, 1907, p. 1542; December 12th, 1908, p. 1764; February 26th, 1910, p. 522.

The investigations carried out under the auspices of the Committee for the Study of Special Diseases at Cambridge have for some time past been grievously hampered by the fact that the hospital is at a distance of nearly two miles from the laboratory. The house used as a hospital is small and in many ways inconvenient, and while these inconveniences have been cheerfully borne by the workers, it is felt that the time has come when this loss of time and energy caused thereby should no longer take place and when the work should be concentrated in one building, provided with all the equipment necessary for clinical research on scientific lines.

We are glad to be able to state that it has been decided to build a hospital of the kind required. A suitable freehold site of one acre, situated on the outskirts of the town on a south-east slope, has been purchased. The site is triangular in shape; the soil on which the building will stand is gravel. The building has been designed with a view to simplicity and economy, and the style chosen is Georgian. The external walls are to be faced with 2 in. red bricks, and the roof covered with green Welsh slates.

The main staircase from the entrance hall leads to a spacious landing on the first floor. A fireplace is provided, and access can be obtained to the front balcony by means of a doorway. It is intended to furnish this landing as a comfortable lounge for the use of the patients. Four wards open directly off this landing. Provision has been made for access to the balcony on the south-east side of the building by means of a doorway opening out of the central ward.

The sister's room, situated on the left of the landing, commands an easy view of all the wards. There is also a small room between wards 1 and 2. A service lift has been provided between the kitchen and first floor. The two bathrooms and lavatory are situated above the scullery and downstairs lavatory, and are so arranged that cross ventilation is obtained, and that all the service pipes are in that part of the building farthest removed from the residential portion.

The back staircase leads on to the attics, in which are situated the nurses' and servants' rooms and a large linen cupboard.

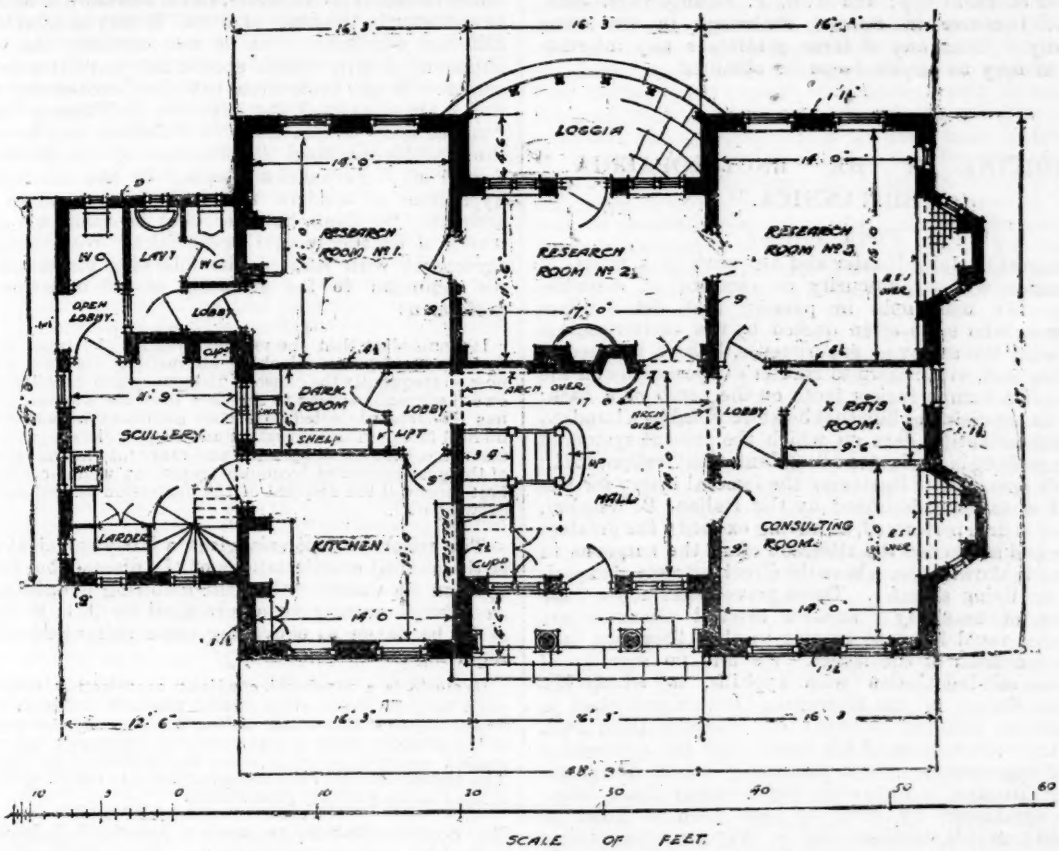

Fig. 2.—Ground Floor Plan.

The front and back elevations have N.W. and S.E. (Fig. 1) aspects respectively. Balconies have been provided on both N.W. and S.E. fronts for the convenience of the patients.

On the ground floor is an entrance hall with fireplace and a well staircase leading up to the first floor by a series of easy flights. Opening off the hall are the consulting room and library and the three rooms to be used at present as research rooms and museum. A photographic dark room and a room for the *x*-ray apparatus have been provided on this floor, the latter being connected with the research and consulting rooms by means of a lobby. The ground floor plan here reproduced (Fig. 2) gives an idea of the arrangement of what may be called the working department of the hospital. It will be observed that all the research rooms can be entirely shut off from the rest of the hospital. The domestic offices are entered from the left side of the hall through a lobby. A good sized kitchen with scullery, etc., has been provided. From the scullery a back staircase leads to the upper floors. An open lobby is provided to the scullery, forming a side entrance.

The architect, Mr. Herbert W. Maguire of London, has skilfully carried out the difficult task of designing a building which can be used either as a private residence, a hospital, or a hospital and laboratory combined. It is estimated that the building will cost £1,600, a most reasonable sum considering the accommodation provided.

It is expected that the foundation stone of the building will be laid at an early date, and that it will be completed within a few months. We are sure that the existence of a properly appointed hospital will of itself serve to give a great impetus to the study of the diseases for the investigation of which it has been founded. We congratulate all concerned on the success of their persevering efforts, and we wish them every success in the enterprise on which they have embarked.

In the article published in the JOURNAL of February 26th, 1910, we pointed out that it was most desirable that the hospital should be placed on a sound economic footing. The funds for the building have been provided, but it is necessary that those who have charge of the hospital should not have their minds distracted from research by

sordid cares. The profession, as we have said, has out of its scanty resources hitherto kept the hospital going. If medicine were a trade this would be a very foolish policy, as it amounts to contributing towards the discovery of means of relieving suffering—a discovery that will tend to dry up a Pactolus of fees from wealthy patients. This consideration has never been allowed by the medical profession to stand in the way of its ceaseless search for means of relieving pain and restoring health to the sick. We are sure that it will continue the support, moral as well as financial, which it has given to the Hospital for the Study of Special Diseases. But the hospital has very distinct claims on the public to whose benefit its work is directed. If that work is not showy, it is sound, and success in the aims of those who have given themselves to it with such self-sacrifice would bring about a greater diminution of the mass of human misery than the discovery of a cure of cancer. The treasurers of the Committee are Sir W. Selby Church, Bart., K.C.B.; Sir Clifford Allbutt, K.C.B., Regius Professor of Physic in the University of Cambridge; G. Sims Woodhead, Professor of Pathology; and T. S. P. Strangeways, Huddersfield Lecturer in Special Pathology in the same university. From any of these gentlemen any information that may be required can be obtained.

MEDICINE IN THE "ENCYCLOPAEDIA BRITANNICA."[1]

FIFTH NOTICE.

THE account of John Hunter and his work is a model of compression without obscurity or sacrifice of essential details. We may note in passing that Sir William Fergusson, who is so often quoted by the antivivisectors as denying the utility of experiments, is here referred to as having said, with regard to Hunter's experiments on the grafting of a human incisor tooth on the comb of a cock: "May we not claim for him that he anticipated by a hundred years the scientific data on which the present system of human grafting is conducted?" (Hunterian Oration, 1871.) Hunter's operation of ligaturing the femoral artery for the cure of aneurysm, described by the Italian, P. Assalini, who saw it first performed, as having excited "the greatest wonder and awakened the attention of all the surgeons in Europe," is shown to have been the direct outcome of experiments on living animals. These proved that under "the stimulus of necessity" smaller arterial channels are capable of rapid increase in size so that they can take on the functions of the larger. We find no mention of Hunter's self-inoculation with syphilis, to which Mr. Edmund Owen, in the Hunterian Oration published in the BRITISH MEDICAL JOURNAL of February 18th, 1911, traces the undermining of his health and the progressive arterial degeneration which ultimately led to his death. William Hunter is somewhat inadequately dealt with; he is considered by some to have been as great an anatomist as his brother, and he was an accomplished scholar besides. Hydrocele and Hydrocephalus are briefly but sufficiently described. Of Hydropathy an interesting account is given, but it is somewhat odd to read of "abdominal typhus" in an English work. Some twelve columns are given to Hypnotism. We find in the article a reference to the French Royal Commission, of which Benjamin Franklin was a member, appointed for the investigation of the claims of Mesmer. It is stated that the Commission reported that "it could not accept the evidence for the existence of the magnetic fluid; but it did not express an opinion as to the reality of the cures said to be effected by its means nor as to the nature of the magnetic sleep." The writer can scarcely have studied with any attention the original report, which, after a detailed account of numerous observations, states expressly that "these facts have given the Commissioners the opportunity of observing that magnetism has seemed to have no effect in those patients who submitted to it with some incredulity; that the Commissioners, even those who have more impressionable nerves, having purposely diverted their attention, have not felt the sensations which the three patients of the lower classes experienced, and they were led to suspect that these impressions, admitting them to be all real, were the consequence of an anticipated persuasion and might be an effect of the imagination." As to the nature of the "magnetic sleep," the writer himself says, in a paragraph preceding the one from which we have quoted, that "it would seem that Mesmer himself was not acquainted with the artificial somnambulism which for nearly a century was called mesmeric or magnetic sleep, and which is now familiar as hypnosis of a well-marked degree." As a matter of fact, however, the Commissioners do refer to drowsiness occurring in one case—that of a lady—but this is attributed to weariness caused by the length and monotony of the procedure. Again, we do not think that the writer, in speaking of the attitude of the medical profession at a later date towards "magnetism," is right in saying that it was not justifiable. It might be gathered from his statement that John Elliotson was "driven out of the profession" by the blind conservatism of its members, and is therefore to be regarded as a martyr in the cause of truth. It may be admitted that Elliotson was honest, but he was certainly the victim of impudent deceit, which should not have imposed on a person with any pretensions to trained accuracy of observation. An account of the exposure by Thomas Wakley of "magnetism" as practised by Elliotson may be found in the *Autobiographical Recollections of the Medical Profession* of J. Fernandez Clarke. Of the development of hypnotism in modern times the author gives a good account. We think, however, that he takes too generous a view of its therapeutic possibilities. We are entirely in agreement with him in the following statement, which we commend to the attention of all members of the profession:

> It seems clear that the various systems of "mind-curing" in the hands of persons lacking all medical training, which are now so frequently the cause of distressing and needless disasters, owe their rapid spread to the fact that the medical profession has hitherto neglected to attach sufficient importance to the mental factor in the causation and cure of disease; and it seems clear, too, that a more general and more intelligent appreciation of the possibilities of hypnotic treatment would constitute the best means at the disposal of the profession for combating this growing evil.

The article on Hysteria gives a fairly sufficient account of the clinical manifestations of the disease, but throws no light on its nature, unless the following definition, quoted as having recently been advanced by J. F. F. Babinski, is to be taken as conveying some enlightenment to the inquiring mind:

> Hysteria is a psychical condition manifesting itself principally by signs that may be termed primary, and in an accessory sense others that we may call secondary. The characteristic of the primary signs is that they may be exactly reproduced in certain subjects by suggestion and dispelled by persuasion. The characteristic of the secondary signs is that they are closely related to the primary phenomena.

We confess that to us such a nebulous definition is a veritable *asylum ignorantiae*. This kind of oracular jargon is unfortunately too common in writers on obscure nervous disorders. The article on Influenza is a good review of the subject. The account of the ravages committed by this painfully familiar disease during the last twenty-two years is particularly valuable. Insanity in all its medical, legal, and other aspects is exhaustively discussed in an article extending over nearly forty-four columns. It is marked throughout by clearness of exposition and a sense of perspective that is often wanting in descriptions of the various forms of mental aberration. The third section of the article, entitled Hospital Treatment, which is by Dr. F. Peterson of New York, may be commended to the careful attention of members of all public bodies which have to deal with the care of the insane.

[1] *The Encyclopaedia Britannica.* A Dictionary of Arts, Sciences, and General Information. Eleventh edition. Vols. I-XIV. Cambridge: University Press. 1910.

DR. PAUL C. E. TRIBE, M.R.C.P., Honorary Physician to the Anglo-American Hospital, Cairo, has been granted by the Khedive of Egypt the Imperial Ottoman Order of the Medjidieh, Third Class, and Captain R. B. Black, M.B., R.A.M.C., the Imperial Ottoman Order of the Osmanieh, Fourth Class, in recognition of valuable services rendered by them.

MEDICO-LEGAL SOCIETY.

THE ABUSE OF DRUGS.

AT a meeting of this society on March 21st, with Sir JOHN TWEEDY in the chair, Mr. W. W. GADD, barrister, read a paper entitled, "How far can the Abuse of Drugs be Prevented by Law?"

The Law and the Abuse of Drugs.

He said his object was to state briefly the present state of the law in regard to the abuse of drugs, and to indicate how far it deals with them: (*a*) Theoretically, (*b*) effectively, and to what extent it needed strengthening. Dealing with the criminal and vicious abuse of drugs, Mr. Gadd pointed out that the criminal abuse of drugs was but little restrained by English law. Legislation had been aimed apparently rather at punishing offenders than at preventing offences. Having drawn attention to the provisions of the Offences against the Person Act, 1861, which penalize the administering of any noxious thing, he said that the question as to what was a poison or a noxious thing was one of fact, it being essential to show that the substance was noxious in the amount used in any particular case. In none of the cases provided for in this Act was there any prohibition of the sale of poisons or noxious substances by persons having no guilty knowledge of the unlawful purposes for which they were procured. The only English Act which prohibited the sale of poisons was the Poisoned Grain Prohibition Act, 1863. As for the Arsenic Act and the Pharmacy Act of 1868 and 1908, they allowed even scheduled poisons to be sold to any one known to the seller after due performance of certain rites and ceremonies connected with the Poisons Register which sellers had to keep. He did not doubt the usefulness of the Poisons Register, for it was the opinion of those qualified to judge that even in the case of intended suicides the difficulties placed in the way of the persons seeking to obtain the poison often disgusted them sufficiently to turn what was probably the ill-defined purpose of an unbalanced mind. Nevertheless, the weakness of the existing schedule was its want of elasticity. It contained only certain definitely named substances and classes of substances. Whilst expressly including all poisonous vegetable alkaloids, it did not embrace synthetic substitutes for alkaloids of equal or greater potency, as for example, eucaine, novocain, and stovaine. Again, whereas sulphonal was specifically included, similar hypnotics, such as veronal, trional, etc., were outside the schedule. The Privy Council might add from time to time to the schedule, but seemed to be reluctant to exercise this power. For example, in spite of the fact that representations had been repeatedly made concerning the use of lead plaster as an abortifacient, the Council had declined to put it upon the schedule. In other countries, and in some of the American States, there was more elasticity in such schedules—thus, speaking from memory, the Poison Schedule of the State of Michigan, U.S.A., contained a provision to the effect that any drugs, the medicinal dose of which is no more than some few grains, as stated by medical authorities, became *ipso facto* a scheduled poison. An addition might be made to the English schedule to the effect that any drug, the maximum medicinal dose of which was stated by the makers thereof, or by competent medical authorities, not to exceed 2 grains for an adult, should be considered a poison within the meaning of the Pharmacy Acts. But the schedule was practically useless as a means of restraining excessive use by victims of the drug habit. For such, in most civilized countries and particularly in the United States of America, there were prohibitive laws.

Having alluded to the laws of other countries with regard to the sale of narcotics, he proceeded to deal with unqualified prescribing. The only statute directly restricting unqualified practice in this country was the Apothecaries Act, 1815.

The only alternative to seeking the advice of a vendor of repute with a character to lose was usually the swallowing of both the advice and the nostrum of an anonymous medicine-monger, probably an American, and certainly immune to any form of moral suasion. There should be no consideration for the quack blatant; the law allowed any one to manufacture and sell medicines for human use, provided only that if he claimed either that his preparation would cure disease or that he, and he alone, knew the secret of its composition, he was taxed under the Medicine Stamp Acts. In addition to this, proprietary articles were subject to the provisions of the Pharmacy Acts. Very few proprietary articles were the subjects of actual letters patent, and the Pharmaceutical Society had on many occasions secured the revocation of patents for medicines containing scheduled poisons, great weight being given by the Chancery Courts to the argument that the effect of the patent would be to enable the patentee to sell without restriction an article which, if not protected by letters patent, could not be thus sold.

Certain groups of articles were excepted from the Medicine Stamp Acts. Thus, preparations known, admitted, and approved of as remedies when sold by chemists and druggists, surgeons, and apothecaries, were excluded, provided always that the vendor did not (*a*) claim to possess occult secret or art in making the preparation; (*b*) claim or possess any exclusive proprietorship. This provision had for a number of years remained a dead letter; the question of its applicability was raised in the case of Farmer *v.* Glyn Jones, and was decided in favour of the defendant both by the magistrate and on appeal. After this decision the Board of Customs and Excise had declared that a preparation shall be regarded as known, admitted, and approved: (1) If the label bears a statement of the ingredients of the medicine or adequate indication of the active ingredients; (2) if the medicine is prepared according to some well-known book of formulas, and a number permitting ready identification of the particular formula is stated or indicated on the label. The onus of proving that the composition of a preparation sold accorded with the assertion made or implied on the label rested with the vendor who claimed the exemption. Since this decision a pharmacist could sell remedies for specific complaints without stamps under cover of this exemption, the active ingredients being indicated on the label, or the source of the formula denoted by initials or numbers. There appeared to be no objection to making all manufacturers put forth their claims to cure disease, and to state the composition or at least the active ingredients of their preparations in some such way as was already done by those who sought to evade the incidence of the stamp duty.

In dealing with the sale of these articles the Quackery Prevention Act, 1908, of New Zealand might usefully be imitated; by it every person committed an offence who published any statement intended to promote the sale of any article as a medicine, etc., for the prevention, alleviation, or cure of any ailment or physical defect, and which was false in any material particular. A statement was deemed to be published within the meaning of this Act if inserted in any newspaper printed and published in New Zealand or otherwise advertised.

A modern ill of increasing virulence was the habit of persons purchasing and taking potent drugs for morbid conditions, real or imaginary, from which they were suffering, or supposed themselves to be suffering. The practically unrestrained access to hypnotics and analgesics and other potent medicaments fostered this abuse. To remedy this evil the Poisons Schedule might be made to include all powerful drugs. The abuse of drugs by the unauthorized use of medicines originally prescribed by duly qualified medical practitioners for a particular patient in a specific state at a certain time ought also to be checked. He admitted that the question of the repeated dispensing of medical prescription was one of some difficulty. It appeared that the prescription was the property of the patient, who had received it in return for a fee, and that the only restraint on its undue repetition was by an honourable understanding between physicians and pharmacists, any breach of which should be treated rather as a violation of professional etiquette than as a legal offence.

"Patent Medicines."

Dr. TUNNICLIFFE then read a paper on "Patent Medicines," in the course of which he said that, owing to growth of the sale of proprietary articles, the local pharmacist was suffering. The unqualified pushers of secret remedies had been somewhat checked since 1905, but fraud and actual harm were still possible. The use of remedies harmless in themselves meant loss of time, and made

the task of the genuine healers more difficult. The term "patent medicine" was inconvenient, because it included both useful and fraudulent articles. With regard to true patent medicines, the proprietor was generally able to establish a commercial title, so that his business went on after the lapse of the patent. Last year deaths caused by scheduled poisons were 20 in number, while 29 persons died of unscheduled poisons. An advantage of having a poison on the schedule was that it gave notice to the public that certain things were poisonous. He desired to see formed a new schedule of drugs which could only be sold under a medical prescription. The majority of so-called "patent medicines" were not patented at all. If they contained poison the fact had to be stated, but there need be no description of the kind of poison, and no notice to the purchaser of how much poison they contained. There were a large number of drugs not yet on the Poison Schedule the consumption of which he would like to see placed under a greater degree of control. The patent medicines usually sold might be conveniently divided into four classes—namely: (1) Abortifacients; (2) nostrums which were obviously frauds upon the public; (3) active medicines; and (4) mixtures containing alcohol. As to the first class, while savin and ergot were to be found in the Poison Schedule, the active principle of parsley was not to be found there. Again, lead was used as an abortifacient, and it was a significant fact that of the persons who died last year of lead poisoning the large majority were of the female sex. Sulphate of iron and aloes might also be used for this purpose. Having referred to various medicines sold for neuralgia, and to a number of other quack remedies, Dr. Tunnicliffe enumerated a number of tonics which often contained a larger percentage of alcohol than was to be found in ordinary vinous liquors. In his view, the doctrine of *caveat emptor* was stretched to the breaking point when invoked to protect the vendors of patent medicines in this country.

THE LONDON SCHOOL OF CLINICAL MEDICINE.

The members and friends of the London School of Clinical Medicine, Seamen's Hospital, Greenwich, dined together on March 24th at Prince's Restaurant, Piccadilly, under the genial chairmanship of Admiral Lord Charles Beresford, M.P. There was a large attendance.

The Chairman, in proposing the toast of "The London School of Clinical Medicine," announced that the King had doubled his subscription to the Greenwich Seamen's Hospital (Dreadnought). The school had been established to provide instruction for medical men who, having already qualified, were desirous of keeping themselves informed of the latest methods and discoveries in medicine and surgery. The rapid growth of science, and especially the science of healing, rendered it imperative, if a doctor meant to do the best for his patient, that he should attend some centre of instruction where he could hear and see the latest developments of his art. That was particularly necessary in the case of medical officers in the navy, the army, and other services of the Crown, for they were frequently at a distance from centres of medical education, and could only at intervals devote themselves to study and research. There was no more fitting place for men of that class to obtain instruction than the Seamen's Hospital at Greenwich, and here had been established the London School of Clinical Medicine. That hospital, with 330 beds, treated every form of ailment, and especially ailments which attacked men in the services. The hospital and school were equipped with a staff of physicians and surgeons who had attained the highest rank in their profession, and who were willing and ready to give their services free to the sick and injured, and to devote their energies to the students of the school. The work done at the Dreadnought Hospital comprised many phases. There the student could study for the higher examinations; there might be found the missionary home on leave, and men from Greater Britain and from foreign countries. There the aspirant for entry to the services obtained instruction prior to going up for his examination, and there the general practitioner spared from his busy life an hour now and then to hear a lecture by the bedside, to listen to some demonstration, or to see some operation conducted. Although the school had only been in existence five years, 479 students had taken out courses, and among those he was gratified to find that there were no less than 47 naval surgeons. These had been seconded for study by the Admiralty, and an arrangement now existed whereby about 30 naval officers attended the school annually. Lord Charles concluded his speech with an earnest appeal for the supply of hospital ships for the navy.

Sir W. H. Bennett, in replying to the toast, said that post-graduate teaching in this country was under the disadvantage of not being officially recognized by those who had the control of medical education. In every other European country post-graduate teaching was regarded as of great importance. He had received a letter from Sir Thomas Barlow, who expressed his satisfaction at the progress made by the London School of Clinical Medicine, and said that a post-graduate teaching must have recognition sooner or later. He deprecated the waste of energy caused by three or four well-equipped post-graduate institutions working in rivalry—in friendly rivalry it was true—in the metropolis. He concluded by giving details of the satisfactory financial position of the London School of Clinical Medicine.

Professor R. Tanner Hewlett, who also responded to the toast, said that the school acted up to the policy of making the London School of Clinical Medicine thoroughly competent to fulfil the duty it had undertaken.

The toast of "The Guests" was proposed by Captain A. W. Clarke, and was acknowledged by Sir William H. Allchin, who contrasted the modern methods of teaching medicine with the methods that obtained when he was a student. He considered that the London School of Clinical Medicine had before it an enormous field of work.

Dr. Frederick Taylor proposed the toast of "The Chairman," and after a brief reply the proceedings terminated.

SURGERY BEFORE LISTER.

On March 23rd the Fishmongers' Company entertained at dinner at Fishmongers' Hall a number of members of the medical profession. In the absence of the Prime Warden owing to indisposition, the chair was taken by the Earl of Portsmouth, one of the junior wardens. After giving the usual loyal toasts, the Chairman proposed that of the medical profession, coupling with it the names of the President of the Royal College of Physicians and the President of the Royal College of Surgeons.

Mr. Butlin's reply was reminiscent of a period when surgery was about to be transformed by the spread of the antiseptic method, and, as it gives a picture which many of the most active surgeons of to-day cannot know from personal experience, it has seemed well to reproduce it in full.

Mr. Butlin: I think it might interest the Wardens and the Livery of the Corporation to hear my own personal experience of the great revolution which has been effected in surgery, and to which reference has been made. In order that you may understand it, I must carry you back to the Sixties of the last century, when I was house-surgeon to that eminent man, Mr. (Sir James) Paget. At that time the ordinary course of events was in this wise: Mr. Paget would perform an operation, such as the resection of a joint, on the Saturday; it would be performed properly, and the limb would be fixed upon a splint, and all would go well for a few days. But perhaps on the following Thursday the house-surgeon would receive a message from the Sister of the ward to come at once because the patient was shivering. He would find the Sister by the patient's bed, the child wrapped in a warm blanket, but still shivering from head to foot so that her teeth chattered, and he knew at once that this was the almost certain presage of that terrible blood poisoning, pyaemia, which would surely end fatally in the course of five or six weeks. Sometimes it meant septicaemia, not less deadly but more merciful, because it did its work in five days instead of five weeks. And the best hope was that it might only mean an attack of erysipelas, which would probably not be fatal. It was not only after large operations that these blood poisonings

occurred. I have seen a child die within forty hours of the division of a tendon, and a strong and healthy man die within five days of the removal of an ulcer from his arm. There were always cases of blood poisoning in the surgical wards at that time. Nor was this all. For there were horrible diseases of wounds which spread with singular rapidity, and one of them, hospital gangrene, spread from bed to bed until there was not a wound in the ward free from it. It may well be understood that the surgeons of those days were very sad over such conditions, and constantly wondering what could be done to prevent or remedy them.

It was at this time that Mr. Paget came down one day and found in his wards a man with a crooked spine, and an abscess by the side of it, a kind of case which was the terror of the surgeon, for he was between the devil and the deep sea. If he opened the abscess the patient would almost certainly die of blood poisoning. If he left it to open by itself there was no knowing when and where it might choose to open. When he saw the case Mr. Paget said: "Now, Butlin, we will treat this by a new method. There is a man called Lister in Scotland who has recommended a method for the treatment of such cases. I will bring down the description of it to-morrow." On the next day he desired me to have a kind of putty made of certain ingredients, among which the most important was carbolic acid. The opening was to be made beneath a piece of lint soaked in a solution of carbolic acid; then the putty was to be put upon it, and over that a piece of sheet lead. The principles of the treatment were not explained to us. All the directions were carried out: the putty was applied with the sheet-lead over it, and was fixed with plaster and bandage. But as it was only a lump about as large as a small fist, it soon slipped down, and slipped down again and again, until the usual blood poisoning occurred and the patient died, as he might have done with the old treatment. This was the first time we had ever heard the name of Lister, and you may be sure we were not favourably impressed by what had happened under his name.

Ten years later the name of Lister was well known, and surgeons all over the world were divided into two great camps—those who were for Lister and those who were against him. It was very interesting to trace the part which he himself took in the contest. Born of a Quaker family, a man of peace, of kind and courteous manner, incapable of a harsh word, he did more for his cause by his persistent and quiet advocacy than he would have done had he been eloquent and a born fighter.

Every one now knows how, some twenty years ago, the fight was practically over, and every one now knows what the condition of surgery is. There are men of the younger generation in the room to-night who have never seen a case of blood poisoning after operation and who have no idea what hospital gangrene was like. Operations are practised so well and so frequently that the public has come to regard them almost as a form of innocent recreation. They are confident even to rashness.

This vast result, greater in its effect upon every civilized country than the French Revolution was in France, was accomplished by one man upon the work of another man—a Frenchman—and I have often thanked the kind fate which brought me into surgery when Providence had given to the world such men as Pasteur and Lister, so that I should actually have known and conversed with one of them.

I should like to say that these great results were not procured without experimental investigation. Not only did Professor Lister think himself justified in testing his methods on animals before he applied them to men, but he would not have thought himself justified in applying them to human beings unless he had first tested them on animals, where that was possible. I say this not with any intention to apologize for this great man—there is no need for that—but because this is a period of maudlin sentimentality, when there are many persons going about the world objecting first to one thing then another. They might well be called "antibodies." They object to many of those things which have made this dinner so agreeable—to the eating of flesh, to the drinking of wine, to the smoking of tobacco. They are antivaccination, antivivisection. Many of them are opposed to thrift and some object to religion. And they believe they have not performed their daily round of duty unless they have passed some part of their time in shouting out their own opinions, and in shouting down those persons who do not agree with them.

ASSOCIATION OF MEDICAL OFFICERS OF HEALTH.

THE second annual meeting of the association was held at the Holborn Restaurant on March 23rd, with Dr. CROOKSHANK in the chair. The report of the council was considered and adopted. Dr. MARSHALL, of Lowestoft, and Dr. DUNBAR DICKSON, of Marlow, expressed appreciation of the work done. The following officers were elected: Chairman, Dr. Rashell Davison; Honorary Treasurer, Dr. Senior; Honorary Secretary, Mr. D. A. Belilios. In accordance with the rules of the association, six members of the council retired on this occasion. The following, Drs. Chronnell, Cross, and Dykes were re-elected, and Drs. Gibbs-Smith, Butler Harris, Parkinson, and Spreat were elected to fill the vacancies. A hearty vote of thanks was passed to Drs. Crookshank, Gibbs-Smith, Barrow, and Fremantle for their very valuable services. A letter from the Council of the British Medical Association was read and was referred to the council. The question of a journal was considered, and it was decided to issue a quarterly supplement in the *Medical Officer*, to be sent to all members.

The conference convened by the association was held later, when delegates from the following associations were present: Certifying Factory Surgeons, Postal Medical Officers, Poor Law Medical Officers, and Metropolitan Police Surgeons. Mr. D. A. BELILIOS, the temporary secretary, stated that the Association of Public Vaccinators had agreed to attend the meeting, but, owing to there being no council meeting till the end of April, they could not appoint delegates till that time. The delegates then voted Dr. CROOKSHANK to the chair, and he, in his preliminary statement, said that no votes would be taken on the questions to be discussed. He invited opinions as to (1) the desirability or otherwise of some joint action being taken by the various associations of medical men holding part-time appointments, when their various interests were threatened, and in the event of the answer being in the affirmative, (2) the methods by which co-operation could be rendered possible. He suggested that the delegates should return to their respective societies, and come back with definite instructions. He then briefly referred to the recent memorandum of the Local Government Board, with special reference to the policy outlined of giving the medical officers of health in the smaller districts the posts of public vaccinators, police surgeons, Poor Law medical officers, factory surgeons, and postal medical officers, so that the medical officer of health could be independent of private practice, and to the co-operation of the Local Government Board with the Home Office in the matter. All the delegates expressed the opinion that a joint permanent committee should be formed. It was decided that the delegates should return to their associations for definite instructions, and forward the results to the Honorary Secretary of the Association of Medical Officers of Health, who would convene a meeting later.

LITERARY NOTES.

REFERRING to a paragraph which appeared under the head of Literary Notes in the JOURNAL of March 25th, the Rev. Fielding Ould (Kensington) writes: "I was interested to see the quotation from M Clintock's memoir referring to Sir Fielding Ould in the BRITISH MEDICAL JOURNAL this week. An alternative verse of the period is as follows:

> Sir Fielding Ould the sword of knighthood gained
> For saving ladies' lives in child-bed pained.

As the point has been sometimes raised, may I say that there seems no doubt that Ould attended the Countess of Mornington at the birth of the "Iron Duke"? I have seen at an old-established chemist's shop in Dawson Street, Dublin, entries of the prescriptions given by Ould on that occasion. I am the fifth "Fielding" directly descended from the old Doctor."

The vivisection question is the subject of lively controversy in America at present: *Puck* of February 22nd has a telling cartoon. In the foreground is the investigator

in his laboratory. On one side is a group labelled "The Sentimentalists"; it consists of three excited women of different "freak" types and a clergyman whose physiognomy does not suggest what our Transatlantic cousins call "braininess," shrieking "For Mercy's Sake, Stop!" On the other side are "The Sufferers" crying "For Humanity's Sake, Go On!"

Many attempts have been made to account for genius, and Lord Rosebery, in his recent book on *Chatham: His Early Life and Connections*, has made one more. It occurs in the course of the following paragraph, in which he sums up the elements which combined to mould the mind and the temperament of the first William Pitt:

> Heredity counts for much, for more than we reckon in these matters. We breed horses and cattle with careful study on that principle; the prize bull and the Derby winner are the result. With mankind we heed it little or not at all. With Pitt it was everything or almost everything. From his ancestors, most probably the Governor, who, we infer, was a free liver in a tropical climate, he derived the curse of gout. From the same progenitor he inherited a nervous, violent temperament, and some taint of madness. All this told partly for him, partly against him. The gout drove him to study and reflection, but it constantly disabled him. His temperament roused him to great heights of energy and passion both in eloquence and politics, but it also alienated his fellow-men, and made him sometimes eccentric, and sometimes turbulent. We cannot in such a matter hold the balance. What is genius? None can tell. But may it not be the result in character of the conflict of violent strains of heredity, which clash like flint and steel, and produce the divine spark?

The Governor, Thomas Pitt, Governor of Madras, the "reformed filibuster," as Lord Rosebery calls him somewhere else, best known to most people perhaps as the first European owner of the Pitt diamond, was his grandfather. William Pitt suffered from gout even while a schoolboy at Eton, and his biographer evokes the shadow "of the lean, saturnine boy as he limped by the Thames shaping a career, or pondering on life and destiny, dreaming of greatness where so many have dreamed, while he watched half enviously, half scornfully, the sports in which he might not join." The gout drove him prematurely from Oxford after little more than a year of residence, and it pursued him throughout his life. In what might well have seemed the crisis of his fate in 1754, he was so completely pinned to his bed or chair in Bath that, on the very brink of his ministry, he assured Henry Fox that his health would not allow him to hold office. Indeed, as Lord Rosebery says, "in the glimpses we obtain of him, apart from great speeches and the results of victorious policies, we almost always find him prostrate with illness. It is generally the gout or its allies which disable him; but later it is disorder akin to, if not identical with, insanity." The gout was a fearful handicap; the only conceivable compensation was that it drove him into himself, and gave him time to read and think when other men of his age were amusing themselves. Lord Rosebery, in referring to him in that stage of his career when he was an officer of the army, speaks of him as "preserved from mess debauches and idle activity by his guardian demon the gout." Of his fourth sister, Betty, it is charitable to suppose that she was really insane; and as to Anne, who kept her brother's house for many years, and with whom he finally quarrelled fiercely, as was the manner of the Pitts, it seems pretty clear that in the later years of her life her mind became unbalanced. Like Anne, Pitt was as a rule faithful to Bath, but his uneasy quest of health made him seek other resorts, including the spring of St. Rumbold at Astrop Wells, Tunbridge Wells, and Sunninghill. "He thus," says his biographer with that malice which enlivens his pages, "became a constant participator in the tepid diversions of these sickly haunts."

Dr. Fritz Loeb, writing in the *Muenchener medizinische Wochenschrift*, No. 45, 1910, states that in the academic year 1908 to 1909 4,062 inaugural dissertations and discourses for qualification as private lecturers were presented to the various universities of Germany. Of the total number, 1,154 were medical. These he groups as follows: In 263 they consisted of clinical cases. Of those dealing with special subjects, 72 of the 1,154 related to eye disease, 52 to therapeutics, 153 to internal medicine, 55 to tuberculosis, 222 to neurology and psychiatry, 67 to otolaryngology, 93 to dermatology, 23 to medical statistics, 157 to diseases of women, 125 to cancer, and 164 to social medicine. We would not for the world hint a doubt that these theses were the work of any one but the candidates themselves. There was a time, however, when theses could be bought at a regular tariff. In his *Chirurgie vor 100 Jahren*, Georg Fischer tells us that in the German universities of the eighteenth century an ordinary thesis containing a brief description of a disease in Latin of a more or less "doggy" character cost four pistoles; one making some display of learning and written in fairly good Latin could be had for eight, and a still better quality for sixteen pistoles, while a very superior article, containing new and "original" views expressed in Ciceronian Latin, might be bought for thirty-six pistoles. There used to be men at Edinburgh, and doubtless elsewhere, who made a living by putting theses for medical candidates into Latin. The practice was not, however, confined to aspirants for medical degrees. One of the principal characters in Gustave Flaubert's *Education Sentimentale* is described as living by the manufacture of theses for degrees in law. Members of Parliament, we suspect, sometimes have their speeches written for them. Even sermons were once upon a time, if they are not still, marketable commodities. We are far indeed from suggesting that the orators who deliver introductory and other addresses to medical audiences buy their eloquence in the same way. But if they did, there would probably be a sliding scale of prices. Thus a humdrum homily, without any pretension to style, might be purchasable for, say, £5; one with a few literary tags and stock English quotations for £7 10s.; one with a good show of erudition and some Latin quotations, with the quantities plainly marked, for £10 or £15. These might be kept in stock. Superfine medico-philosophico-historico-political discourses on things in general, with new applications of the theory of evolution, references to the tendencies of the age, and a varied assortment of novel metaphors, warranted free from mixture, with a good allowance of purple patches (suitable for the newspapers), all writ in the choicest English, might be supplied to order at rates to be agreed upon, according to the requirements of the purchaser.

As "dichotomy" is practically unknown in this country, a definition of it may not be superfluous. It is a "surgical operation," consisting in the division of the fee for a consultation or an operation between the surgeon and the practitioner who brings him the case. The practice would appear to be not uncommon in France; it forms the subject of one of Gyp's best known books, *Docteur Tant pour Cent*, and it gives the title to a play now running at the Grand-Guignol in Paris. We only know the piece from an account of it given by a critic, M. Joseph Galtier. The plot turns on the question of operating on the wife of a rich contractor for the trifling fee of £1,200. The general practitioner had given to the director of the famous surgeon's laboratory a section of a tumour of the breast. The examination does not prove the existence of a cancer as was feared. Removal is therefore not necessary; but dichotomy must be performed all the same. The general practitioner, when he hears the result of the histological examination, would willingly give up his £600. He is an honest man, who does not wish to be guilty of an infamy. But his wife has luxurious tastes, and frets at the narrow means which check her social ambition. There is a "scene in the house," and the lady threatens to leave her husband. Then the unhappy man gives way. The second act passes in the surgeon's clinic, where everything necessary for the ritual of modern surgery is shown in realistic detail. The patient is brought in on a stretcher, and soon from an adjoining room come cries, groans, and sighs. The sacrifice proceeds, and the woman dies under the anaesthetic. Then the surgeon appears in his operating dress with bloody hands and arms and bloodstained apron. There are degenerates no doubt who like, with Macbeth, to sup full of horrors. But to persons of healthy mind such things are revolting. Apart altogether from the implied insult to the medical profession, they violate the canons of dramatic art. The dagger and the bowl have their place on the stage, and even plays in which, as Byron says, "all stab and everybody dies," need not be offensive. At the end of *Hamlet* the stage is littered with corpses. But we think that surgical operations come within the terms of the Horatian precept, *Nec pueros coram populo Medea trucidet.*

British Medical Journal.

SATURDAY, APRIL 1st, 1911.

NURSE OR MINOR MEDICAL PRACTITIONER?

DURING the past few months we have received a good deal of evidence from all parts of the country that there is a real risk of the establishment of a new form of unqualified practice, all the more dangerous because it is an outgrowth from a system which is universally approved. There seems to be an increasing tendency for both nursing associations and private persons to employ nurses who are not only allowed, but apparently in many places encouraged, to prescribe and administer drugs, to treat minor injuries, and generally to act as minor medical practitioners. The usual history is that some Lady Bountiful, whose heart is better than her head, introduces a nurse who is often also a midwife. Some kind of association or club is formed to which the tenantry and small tradespeople are induced, by those delicate means of persuasion so effective in rural districts, to subscribe, and in order that they may receive full value for their money, the nurse is placed at their disposal for all so-called minor cases. The definition of what is a minor case is left to the discretion of the subscribers and the nurse. It is almost a work of supererogation for a medical journal to praise the work of nurses. In her proper place a nurse is invaluable both to the patient and to the doctor. Properly conducted nursing associations which place at the disposal of poor people trained nurses whose services they would be unable in the ordinary way to procure have been a boon to profession and public alike. But it is necessary to insist upon the elementary fact that the training and qualifications of a nurse do not fit her, and were never intended to fit her, to discharge the functions of an independent practitioner. She is not taught to diagnose disease, or to discriminate between the slighter and more dangerous forms of it, or to weigh the values and dangers of drugs. She is trained to be the assistant of the medical man in a limited though very important sphere. Those who encourage her to aspire to a position of independence are assisting to mislead the public, and are, perhaps unconsciously, but none the less certainly, helping to undermine the present definite and honourable, if subordinate, status of the nurse.

Some of our correspondents who live in remote districts where the social influence of Lady Bountiful is all-powerful have been placed in an awkward dilemma. Their natural tendency is to refuse to countenance nurses who, under pretext of attending to a cut finger or of giving advice in some trifling ailment, are—unconsciously, it may be, in some instances; deliberately, we fear, in others—training the public to believe that the nurse should be called in first and that she should decide whether it is necessary to call in the doctor. But to take up this attitude exposes the country doctor to the displeasure of the patrons of the club or fund, and must inevitably cause a good deal of friction. On the other hand, to countenance such doings is to acquiesce in a fraud on the public, namely, the substitution of a person trained in one kind of work for another whose training and qualifications are quite different. In this difficult position several of our correspondents have asked, "Can the Association do nothing to help us?" We would direct the attention of our correspondents and others placed in the same position to the fact that on December 24th last was published in the SUPPLEMENT to the JOURNAL a set of Model Rules for Nursing Associations, together with a very significant correspondence which had passed between a member of the Association and the General Medical Council. The key to the situation will be found in these documents. In the letter signed by the Assistant Secretary of the General Medical Council it was clearly stated that, although the Council had no jurisdiction over nursing associations which employ unqualified persons to attend and treat patients as if they were qualified, the Council has jurisdiction, and will exercise it, over practitioners who lend themselves to covering such organizations by associating with those so acting.

It appears that the remedy for many of the cases complained of is there plainly indicated. It is open to the practitioners concerned, either personally, or preferably through the agency of the Divisions of the Association, to inform the responsible persons that if as medical practitioners, they countenance nurses who attend on and prescribe for patients, without medical supervision, they will render themselves liable to have their names struck off the *Medical Register*, a risk they do not propose to run. There need be no fear of crippling the legitimate work of the nurses, which is to act under medical instructions, for where those responsible desire to carry this principle into effect the profession may be counted upon to co-operate heartily.

In connexion with this aspect of the question it is to be noted that the Divisions have been informed that in any case in which there is reason to believe that such covering is going on assistance will be given from the central office in dealing with the matter. Members should therefore make use of the machinery which has been placed at their disposal by bringing their difficulties before their Divisions. If this were done generally and promptly, the evil to which we allude might be scotched before it attains really alarming proportions.

Where nurses are under the control of large and responsible organizations, such as a county nursing association, such a state of things as that described is less likely to exist, and if it does, would probably be best dealt with by reference to the Model Rules of the Association. If the rules of the nursing association are found to be so defective as to allow nurses to play the part of minor practitioners, the matter should at once be raised at a Division meeting, and the executive instructed to bring the matter before the notice of the committee of the nursing association in question. The model rules could be submitted as a set of regulations which had received the approval of the recognized organization of the profession. Whether these rules were adopted literally or whether their spirit was infused into some other form of words the result would be the same. The nurse would be relegated to her proper sphere of usefulness, the public would be protected and the legitimate interests of the profession would be conserved. We believe that timely and tactful representations by the Divisions or Branches concerned, in the manner

suggested in the memorandum which accompanied the Model Rules and the correspondence with the General Medical Council (issued to the Divisions on December 21st, 1910), would be sufficient in most cases to achieve the desired end. If these failed, the Divisions concerned would have to be prepared, in the interests of the public as well as of themselves, to adopt a sterner attitude, and to call upon their members to refuse to countenance the work of associations which, openly or tacitly, persist in allowing their nurses to assume the false position of which complaint is made. This latter course of action will, we venture to prophesy, rarely be necessary, but there can be no hesitation in adopting it where courteous representations fail.

OEDEMA.

THE oedema of heart disease has been attributed in the past by most writers to "back pressure." The heart, inefficient as a pump, is supposed to congest the blood within the veins and so increase the capillary pressure and the mechanical transudation (filtration) of fluid into the tissue spaces. To explain the oedema of kidney disease and other toxic states it has been supposed by the champions of the mechanical school that the permeability of the capillary wall is altered by toxic agents, and that this leads to the increased filtration of fluid. Asher and others have urged that the formation of lymph depends not on capillary pressure but on tissue activity—thus the flow from the lymphatics of the neck of a horse may be increased five-fold when it masticates food. The flow from the lymphatics of the salivary glands is increased when saliva is secreted, but not when the secretion is paralysed by atropin, and yet atropin does not affect the vaso-dilatation brought about by the stimulation of the cranial salivary nerves. It has also been shown by the same investigators that the flow of lymph may be increased some hours after death by the injection of certain lymphagogues when no circulation exists. Leonard Hill has insisted that there is no evidence of a rise of capillary pressure due to back pressure; that the capillary pressure and the tissue fluid pressure in any organ or tissue is the same, and therefore there cannot be any filtration pressure; that the wet films of protoplasm, which form the capillaries, tissue cells, and lymph spaces, cannot be compared to rigid filtration membranes; that there is no constant capillary pressure in the parts of the body where oedema occurs, for the fluid contents of the organs and tissue are squeezed on by contraction and relaxation of the muscular mechanisms, by peristalsis, by the action of the skeletal and respiratory muscles, and by change of posture, so that the capillary pressure varies from zero as the sponge-like organs and tissues are emptied or filled by muscular action. The transudation of lymph, therefore, must depend on alterations of the tissue metabolism, on their chemical state, osmotic pressure, and surface tension phenomena.

Charles Bolton has proved by exact measurements that there is no such thing as back pressure. After experimentally obstructing the heart or venae cavae, there only occurs a temporary and trifling rise in venous pressure, and oedema follows at a period when the venous pressure has returned to its normal level. All the recent evidence has gone to show that oedema is not due to increased capillary pressure and transudation, but to diminished blood flow, which leads to want of oxygen, alteration of colloidal state of the living tissue and consequent varying uptake of water by it.

Professor Martin Fischer, of the Oakland Medical School, California, has recently contributed an illuminating and valuable essay on this subject.[1] He has brought the strongest evidence against the mechanical theory. He starts with some simple but very striking experiments on the frog. If a ligature is tied round one leg above the knee so as to obstruct entirely the circulation and the frog is returned to a water tank, the obstructed leg becomes markedly oedematous and blebs form under the skin: there is no question of capillary pressure here. If an ox or sheep eye is put in acidulated water, it swells till the sclera bursts. The addition of salts in very dilute solution diminishes the swelling, some more than others—for example, chlorides least and citrates most. Gelatine and fibrin swell and imbibe much water from acid solutions—for example, $\frac{1}{10}$ normal HCl—and shrink if $\frac{1}{10}$ molecular solution of a salt is added to the acid solutions. An urticarial-like wheal can be induced in a cake of gelatine, immersed in water, by injecting into it a drop of formic acid, and this can be diminished by ammonia or sodium citrate solution. Here we have an exact comparison with the effect and relief of a bee-sting. An instructive model illustrating in part the renal functions can be made by packing some powdered fibrin into a U-tube, and arranging over it a constant hydrostatic pressure of physiological salt solution. The fluid drips through the fibrin at a constant rate. If sodium citrate (or other diuretic salt) be added, the fibrin shrinks, and the rate of outflow increases. If acid be added, the fibrin swells, the outflow is scanty, and albumen comes through! This is removed by again adding sodium citrate. Professor Martin Fischer has found that he could not only relieve the tension in several cases of glaucoma, but keep it low for several days by the simple expedient of injecting $\frac{1}{8}$ to $\frac{1}{6}$ molecular solution (4.05 to 5.41 per cent.) pure sodium citrate solution subconjunctivally. For him oedema is caused solely by tissue change, by alteration in the colloidal nature, and affinity for water.

Physical chemists recognize two kinds of colloids—emulsion colloids and suspension colloids; the former are a mixture of two liquid phases, the latter a mixture of a solid and a liquid phase; the former are viscous, gelatinizing, and not readily coagulated by salts and hydrophilic, the latter non-viscous, non-gelatinizing, and readily coagulated by salts and hydrophobic. To the former belong gelatine, starch, dextrin, albumen, etc.; to the latter colloidal solutions of ferric hydroxide, aluminium hydroxide, etc., and haemoglobin. There will be no difficulty in accounting for the various experimental facts concerning oedema if we ignore the theory of the existence of impermeable or partially permeable cell membranes and simply remember that the substance of a cell consists of a mixture of different colloids. There are colloids with physical and chemical properties analogous to those of gelatine, and lipoid colloids having the power to take up substances soluble in fat-like bodies; also carbohydrate colloids, etc.

The laws of simple solution, of adsorption, of partition, and of surface tension came into play in these colloids, and these will help us to disentangle the maze of phenomena included under the heading, absorption. We know that an insufficiency of blood

[1] *Oedema.* By Professor Martin H. Fischer. The 1909 Nathan Lewis Hatfield Prize Essay of the College of Physicians of Philadelphia. Figs. 51. London: Chapman and Hall. 1910. (Med 8vo, pp. 209. 2 dols.)

flow lessens the oxygen supply and increases the production of acid by-products of metabolism; lactic acid appears in the blood and urine of the dyspnoeic runner (Ryffel); the final stages of metabolism, leading to the production of CO_2 and H_2O, are not completed owing to oxygen want. According to Martin Fischer, the increased acidity leads to oedema. The tissues take up more water, just as fibrin, gelatine, the excised eye, or the frog's leg swells in acidulated water.

Hence the oedema in heart disease is due to obstructed circulation, deficient blood flow, diminished oxygenation, acid production, and increased hydrophilic property of the colloids of the tissues. He says: "The blood and lymph circulate fluid to the tissues and away from them, but what the tissues will take up or give off rests with them. Only as these circulatory systems carry to the tissues substances which directly threaten their existence, or fail to remove such as these tissues have produced, which, if allowed to accumulate, will overcome them, only in so far are the circulatory systems masters of the tissues."

Martin Fischer finds that oedema of the kidney can be produced just as surely by ligation of the renal artery as of the renal vein, for the organ, cut off from arterial blood and oxygen, takes up water from the surrounding collateral vessels; that oedema of the liver is produced by ligation, not of the portal vein, but of the hepatic artery, which maintains the oxygen supply to the tissues of this organ; that oedema of the lungs is produced by obstruction of the bronchial arteries, which feed the tissues of the lung itself. The fact that the bronchial arteries arise from the thoracic aorta explains why pulmonary oedema is the last to supervene when the circulation is failing.

A great advance will be made when it has become generally recognized that the mechanical theories concerning oedema are unsound, and that causation and treatment depend on the nutrition of the tissues. Professor Martin Fischer's suggestive work will well repay the study of the thoughtful clinician.

THE COUNTY COUNCILS ASSOCIATION AND THE POOR LAW.

IN the BRITISH MEDICAL JOURNAL for February 4th was given a summary of the Poor Law proposals of the executive council of the County Councils Association, and on March 4th some criticisms by Sir Arthur Downes on these proposals were noted. The association has now published its proposals in a pamphlet,[1] which contains also an account of the meeting of the executive council at which the proposals were adopted, a tabular statement of the administrative provisions of the Majority and Minority reports of the Royal Commission which Lord George Hamilton and Mrs. Sidney Webb have approved as accurately presenting the two sets of proposals, and reprints of the expressions of opinion about the proposals by a considerable number of the Royal Commissioners which have appeared in the *Morning Post*. In a preface the secretary of the County Councils Association attempts to combat the impression, said to have been produced in some quarters, that the scheme of the association ignores existing boards of guardians, but he is bound to admit that under this scheme guardians would lose some of the independence they now enjoy. Among the criticisms here collected is one by Lord George Hamilton, who expresses the opinion that the scheme is an endorsement of the Majority Report, though it differs in some important respects. Several other signatories of the Majority Report consider that the scheme forms a useful basis for a few concessions which would convert the divergent reports of the Commission into a practical instrument for reform. On the other hand, Mrs. Sidney Webb and other signatories of the Minority Report profess to regard the scheme as equally satisfactory from their point of view. The Dean of Norwich (Dr. Russell Wakefield), however, foresees serious opposition to it from boards of guardians. By far the most trenchant criticism is that of Mr. C. S. Loch, who, among other things, complains that the scheme makes no reference to methods of medical administration, as, for instance, the promotion of a paying or provident system, the association of voluntary with public hospitals, etc., for the better treatment of sickness. Mr. Loch expresses the greatest regret that the County Councils Association has placed so meagre and insufficient a report before the public. There seems, in fact, to be some ground for the fear expressed by Mrs. Bosanquet that "something at least of the general acceptability of the scheme is due to the scope it affords for different interpretations," and until the scheme is presented in a more definite form and in greater detail, it is quite impossible that it should be accepted without the greatest reserve.

[1] *County Councils Association's Proposals for Poor Law Administration, after consideration of Majority and Minority Reports. Also Views of Royal Commissioners on the Scheme.* London: P. S. King and Son. 1911 (Demy 8vo, pp. 86. 1s.)

THE OXFORD EYE HOSPITAL.

THE Oxford Eye Hospital, which was founded in 1887 and which in 1894 obtained a lease, since extended, of a block belonging to the Radcliffe Infirmary, has now attained a position of national importance, inasmuch as, thanks to the initiative of Mr. R. W. Doyne, Margaret Ogilvie Reader in Ophthalmology in the University, there is now annually conducted a post-graduate course of ophthalmology, followed by a congress of ophthalmic surgeons; last year the course was attended by twenty persons and the congress by 120. The year 1910 witnessed the first examination for the diploma in ophthalmology, and numerous surgeons from all parts of the British Empire and America attended the hospital for three months' clinical work. At the last congress, which was attended by Lagrange of Bordeaux, Remy of Dijon, Heine, and Holth, several operations were performed at the Eye Hospital by their originators for the first time in this country, and the members had an opportunity of witnessing several intracapsular operations for the extraction of cataract after the method of Colonel Smith, of the Indian Medical Service, performed by Major Gidney, of the same service, while he was attending the diploma course. The number of new patients who attended the hospital during the year showed an increase, and the only regret which Mr. P. H. Adams, one of the honorary surgeons who signs the medical report, has to express is that the hospital is still handicapped owing to want of proper room for carrying on the scientific work in a satisfactory way.

THE FUTURE OF LONDON UNIVERSITY.

AT the annual dinner of the University of London Graduates' Association on March 24th, Sir William Collins, the chairman of the evening, said that the association stood for the Imperial scope of the University of London, for freedom, for a Senate independent of sectarian or institutional representation, and for securing for London the best teaching that the world possessed. It stood, too, for the high

standard of degrees which had made the reputation of the university. The Royal Commission which had been appointed to consider its affairs did not contain a single graduate, and the Senate of the university had decided not to give evidence before it. Hence that commission was foredoomed to failure. Later in the evening Sir Philip Magnus said that the real cause of the appointment of the Royal Commission was the Imperial College of Science, which might possibly become a powerful rival to the university unless its constitution could be so altered as to enable the college to be incorporated under some form of home rule. This we believe to be the literal truth, the executive of the college having declined to be placed in subordination to a body constituted as is the present Senate of the university. The decision of the Senate not to give evidence before the Royal Commission may have been due to a natural modesty, as one of the matters into which the Royal Commission has to inquire is the conduct of the business of the university by the Senate during the last decade, but on the other hand it may have been due to a sharp division of opinion within the Senate with regard to external students. Here again we find Sir Philip Magnus confirming our impression, for he said he had heard it whispered that the Commission might recommend that the external students should be handed over to the Board of Education, adding that such a proposal would meet with the strenuous opposition of large numbers. If, as Sir William Collins thinks, the Royal Commission is foredoomed to failure, it must be on this account, and such a result would be not a little tantalizing to those who are interested in medical education in London. The rights and grievances of external students have not very nearly concerned the Medical Faculty for generations, since it has long been necessary for a candidate for the medical degrees of the university to pass through a stated curriculum in a recognized college or medical school. The matter concerns the medical faculty to-day less than ever, for with the multiplication of universities the number of candidates for London medical degrees from schools other than those in London is a steadily diminishing proportion. Medical education in London is at present in a very unsatisfactory state, the vast clinical resources of the metropolis are being largely wasted, and these facts are in a measure due to the failure of the University of London to march with the times. The fates of the university and of the London medical schools are bound up together.

THE FIRST ISOLATION HOSPITAL IN FRANCE.

THE idea of isolation wards and hospitals set apart for contagious diseases was practically unknown in the Middle Ages, and the wards of a mediaeval hospital usually contained examples of all the ills that flesh is heir to, not even excepting madness or plague, cases of which were sometimes placed in the same bed with patients suffering from scarlet fever or a broken leg. It took many centuries for our forefathers to realize the danger, not only to the inmates of the hospital itself but to the whole community, of the terrible outbreaks of infectious disease which from time to time decimated the hospices and lazar houses of mediaeval Europe; and it does not appear that in France, at any rate, there was any attempt to isolate fever or plague-stricken patients till Henry IV founded the hospital of St. Louis, and, dedicating it to his saintly ancestor, who had died of plague in the East, declared that in his honour it should be reserved solely for those suffering from the same malady. An interesting account of this institution is given in a recent number of the *Paris Médical* by Professor E. Gaucher and Dr. H. Gougerot. The new hospital was built in 1607 (the King himself laying the foundation stone on Friday, July 13th), in a secluded spot outside the walls of Paris, where, save for windmills and a few gardeners' cottages there were no other human habitations in sight. The buildings were not finally completed until the beginning of 1611, when the wards were immediately filled by plague patients from the Hôtel-Dieu. It is interesting to note, by the way, that these wards, which were very large and high with vaulted roofs, were all on the first floor, it being strictly forbidden to lodge either patients, healthy people, or stores on the floor above contagious cases. So stringently were the rules of segregation enforced, that soldiers were actually picketed outside the walls to prevent any communication between the patients and the outside world; whilst, to make assurance doubly sure, the whole building was bolted and barred like a prison. The hospital, in fact, was so completely isolated, that in 1639 an edict was passed authorizing a supply of halberts and other weapons to be sent there in order to provide the inmates with some means of defending themselves in the case of attacks from armed burglars. At the commencement St. Louis seems to have been used simply as a convenient annexe to the Hôtel-Dieu, and was worked by the doctors and nursing nuns belonging to the older hospital, and in the latter half of the seventeenth century, when the plague was for a time more or less in abeyance, it was turned into a sort of convalescent home, where patients were sent to recruit after their stay in the mother house. Later, from 1670 to 1690, it was used for scorbutic patients from Bicêtre and la Salpêtrière, and during the terrible famine at the end of the reign of Louis XIV the hospital buildings were utilized partly as granaries, and partly as a refuge for the hordes of starving beggars who were then terrorizing the countryside. During the twenty years which elapsed from 1709 to 1729, the hospital was closed, and had, in fact, a narrow escape from being converted into a government office. The authorities of the Hôtel-Dieu were happily able to save their property from such a fate, and shortly after St. Louis was reopened and its wards refilled, at first with scorbutic patients, but little by little with all kinds of cutaneous diseases, which at that period were all grouped together under the heading of "ulcers." Situated as it was too far from Paris to allow the physicians to visit it daily, it is easy to see how St. Louis, in the course of time, came to be used solely for chronic and incurable cases; and it was in this manner that the hospital gained its special character. It was about the year 1772 that St. Louis finally ceased to be an isolation hospital, and entered upon its own separate existence as an independent establishment, and since that date its wards have never been closed. A few years later it was officially recognized as a skin hospital; and it only needed the reflected glory of Alibert and those who followed him to render the ancient pesthouse one of the most famous centres of dermatology in the world.

EDUCATION OF CHILDREN IN HOSPITALS.

AT the annual meeting of the Orthopaedic Hospital of Ireland, held recently in Dublin, Mr. Justice Ross, in moving the adoption of the report, spoke of the importance of attending to the education of children who were detained in hospital for long periods, as was by no means uncommon in orthopaedic hospitals. He stated that, as a Commissioner of National Education, he had brought the matter before his Board, and representations had been made to the Treasury, but hitherto without effect. He pointed out that in America arrangements already existed for the efficient

teaching of children who are condemned to long hospital treatment, and added that he himself intended to press the matter further, and hoped to be able to make some statement on the subject at the next annual meeting. It may be interesting to add that in the orthopaedic hospitals of the United States schools for the child patients have existed for a long time. The most notable institution is the splendid Widener Home and School for Cripples in Philadelphia, where they are surgically treated and taught trades. In this country the first hospital to organize a school was the Liverpool Country Hospital for Children, where those children who are able to get up are taught in a day ward. At the National Orthopaedic Hospital in London teaching was started in the children's wards about 1897. This school was afterwards taken over by the School Board and transferred to the County Council. It continues in the Amalgamated Royal National Orthopaedic Hospital, and is reckoned one of the schools for physically defective children. Here, as in the Alexandra Hospital for Hip Disease, the patients are taught in their beds. It is hardly necessary to mention the teaching work at the Alton Home, an institution organized somewhat on the lines of the Liverpool Country Hospital for Children.

MR. COLERIDGE AND ANTIVIVISECTIONIST METHODS.

OUR attention has been called to a letter published in the Paris edition of the *New York Herald* of March 19th, which bears the signature of Mr. Stephen Coleridge. It appears that Dr. Herbert Snow has lately been preaching a crusade against vivisection in the United States. His efforts, as far as we can judge from the few references to them that we have seen in the American journals, have not, if we may use a French phrase, broken any windows. His speeches seem to have been of the usual antivivisectionist kind; he only repeated "a tale of little meaning though the words are strong." Mr. Coleridge, however, is greatly shocked by the following statement attributed to Dr. Snow: "Vivisection is useless because a final experiment must be performed on a man, no matter how many tests have previously been practised on living animals. For this reason human vivisection is secretly practised in hospitals on an extensive scale. This is not denied by surgeons who have regard for the truth." Mr. Coleridge says he is sure that this must be a misleading report of what Dr. Snow said, as it seems to put into his mouth an accusation made in general terms of a very grave offence committed by surgeons in hospitals, without the citation of a single specific instance to support it. He goes on to say: "I cannot think that Dr. Snow would accuse surgeons in general of vivisecting their patients in hospitals for experimental purposes, as though they were animals, without citing some authentic instance, as such an utterance on his part would, of course, be entirely unjustifiable, and would be certain to do the cause of antivivisection injury. There are no doubt occasions when a new treatment sincerely anticipated to be beneficent may with perfect propriety and the consent of the patient be applied experimentally. Such occasions ought not to be confused in the public utterances of antivivisectionists with criminal assaults, by way of experiment, upon patients for experimental purposes unconnected with their particular malady, and perpetrated without their knowledge or consent. If Dr. Snow has evidence of the latter outrage having been committed by any surgeon in any hospital, at any time, upon any patient, he could not do the cause of antivivisection a greater service than to specify the occasion and denounce it." Mr. Coleridge looks forward to an explanatory letter from Dr. Snow, and in the meantime, as representative of the National Antivivisection Society, dissociates that body from Dr. Snow's statement until that gentleman "either supports it with specific instances, or repudiates it as being an inaccurate report of his words." Mr. Coleridge's sentiments are truly edifying, but his letter reminds us of a passage in the *Fortunes of Nigel:*

"O, Geordie, Jingling Geordie, it was grand to hear Baby Charles laying down the guilt of dissimulation, and Steenie lecturing on the turpitude of incontinence!"

"I am afraid," said George Heriot, more hastily than prudently, "I might have thought of the old proverb of Satan reproving sin."

As for Dr. Snow, except as far as his own reputation may be concerned, what he may have said is of no consequence. He resembles a famous philosopher in one point:

When Bishop Berkeley said "there was no matter,"
. . . . . 'twas no matter what he said.

UNQUALIFIED PRACTICE.

SOME account was given in the JOURNAL of November 26th, 1910, page 1729, and December 3rd, page 1784, of the Blue Book containing the substance of the replies received by the Local Government Board, the Scottish Office and the Irish Government in answer to a circular letter issued in 1909 to the medical officers of health in the United Kingdom inviting their opinion as to whether the practice of medicine and surgery by unqualified persons was assuming larger proportions, and as to the effect produced by such practice, on the public health. Unfortunately in many places the medical officer of health seems to have taken little trouble to ascertain the truth, if we may judge by the considerable number of returns in which it is stated that there is no unqualified practice at all. Others, on the contrary, have evidently taken much trouble to get at the facts, and as an example of the results that may be obtained when care is taken we may quote the annual report for 1909, presented to the Hampshire County Council by the county medical officer, Dr. Robert A. Lyster. He addressed a circular letter of inquiry to every registered medical practitioner in the county area, enclosing a form asking whether unqualified practice was increasing and its effect, and for further details under the headings of unqualified practitioners, chemists, nurses, midwives, quack doctors and herbalists. The evidence he obtained proves the prevalence of unqualified practice and the consequent damage to the public health. It is carried on not only by the recognized quack who has no other calling, but by midwives, district nurses, chemists, grocers and other shopkeepers, while by means of advertisements the rupture specialist, abortion-monger and vendor of cures for piles, consumption, rupture, cancer and drunkenness reap an abundant harvest from a foolish public. Although medical men know very well how much harm is done, not only by the loss of precious time when diseases are treated by ignorant persons, perhaps the most valuable illustrations of the injury to the public health are afforded by the interference of unqualified persons with the treatment of infectious disease. Dr. Lyster gives instances of chemists treating for mumps children suffering from diphtheria; of a district nurse who attended a case of typhoid fever for several days without recognizing the disease, six other cases arising from it and the nurse herself contracting the disease; another district nurse attended a child with nasal diphtheria until shortly before death took place; another treated a child for sore throat until on the fourth day she advised that a

doctor should be consulted, who found the child to be desperately ill with diphtheria; it died shortly after. Another district nurse wrote to Dr. Lyster to say she was treating so many cases of chicken-pox that her midwifery practice was being interfered with! Another nurse attended a case of scarlet fever, allowing the child to play about the roads until acute nephritis developed, when a doctor was called in; meanwhile the nurse had continued to attend midwifery cases. He quotes a letter from a doctor to say that he was called to a serious accident, but was informed by the patient's mother that "the nurse saw to all their ordinary ailments." There seems reason to believe that this unqualified practice by district nurses is too often directly encouraged by the committees which engage them and pay for their work, and from the complaints we receive it is clear that many committees fail to recognize the importance of associating the local medical practitioners in their work and taking care to provide that the nurse shall be under his supervision and direction, tacitly encouraging her to be his rival not only in midwifery, for which, presumably, she has had some training, but as a general practitioner in medicine and surgery in what she deems to be "simple ailments," but for which she has had no training which can qualify her either to recognize their nature or to treat them efficiently.

FIXATION OF THE COMPLEMENT IN THE DIAGNOSIS OF HYDATID CYSTS.

THE relative rarity in England of echinococcus disease may account for the apparent neglect of the adaptation of the Bordet-Gengou reaction, or what is known as the fixation of the complement, as an aid in diagnosis. The suggestion originated in the observations of Weinberg and Parvu, who in 1908 brought before the Société de Biologie[1] the results of their examination of the blood of forty-one horses to ascertain the reaction to various parasites. Definite positive results were obtained in twenty-one, but where the parasites were found at the necropsy to be few the reaction was sometimes negative. In a second communication[2] they stated that the blood serum of human patients suffering from echinococcus disease gave a positive reaction, the antigen employed being the liquid derived from a hydatid cyst. These observations were confirmed by Weinberg and Bodin,[3] by Lejars, Delbet, and Tuffier.[4] Later Weinberg[5] gave the results in thirty-two cases, but he insisted upon the necessity of: (1) Titrating the alexin carefully in a dilution of one-fourth; (2) ascertaining previously that the serum of the patient did not by itself fix the alexin, as might happen in cases of chronic jaundice; (3) employing a constant maximum dose of antigen with increasing doses of the patient's serum; he drew attention also to the fact that patients who have been cured of echinococcus disease by operation may show the reaction for some time afterwards, in one case so long as in six years and three months. In a recent article Lejars has extolled the utility of the test in suppurating hydatid cysts of the liver, especially in those cases of which the diagnosis is difficult, owing to the absence of any localized swelling or other obvious sign, and it would be quite possible to regard the case as one of diffuse suppurative angio-cholitis. He relates several interesting cases in which a positive reaction obtained by Dr. Parvu gave him the courage to explore deeply and evacuate cysts which he would have otherwise overlooked. It is noteworthy that eosinophilia, which has been accepted as an aid to the diagnosis of this disease, does not run parallel with the Bordet-Gengou reaction (Parvu and Laubry), as in two of Lejars's cases it was only 1 per cent., and in another two 2 per cent. Though Lejars has had a considerable number of cases in which he has proved the trustworthiness of the reaction, he admits that a negative result may be obtained in spite of the presence of a cyst, and he argues with some force that no one would allow a negative result to outweigh other clinical considerations; but, on the other hand, a positive finding, apart from that observed in old cured cases, can be absolutely relied upon. As the diagnosis of deep-seated hydatid cysts is often a matter of great doubt and difficulty to the operating surgeon, it is of the utmost advantage to have a means by which he may obtain before operating a certain knowledge of the existence of a cyst. The method throws no light on its position or size, but here the Roentgen rays come to the aid of the surgeon; if in addition to a positive reaction he can see on the screen a vaguely outlined area, he can proceed boldly with his task of exploring deeply, in spite of haemorrhage which may be so formidable as to deter an operator unsupported by such an assurance.

[1] *La Sem. méd.*, 1908, p. 328.
[2] Ibid., p. 610.
[3] Ibid., 1909, p. 59.
[4] Ibid., p. 152.
[5] Ibid., p. 167.

THE CARDIGAN CANCER "CURES."

IN the JOURNAL of March 23rd, 1907, we gave an account of the Cardigan "Cancer Curers" and their methods. In the issue of December 5th, 1908, Mr. Lynn Thomas reported a case of cancer of the breast said to have been "cured" which he had an opportunity of examining. He summed up the treatment by saying that (1) an attack had been made upon the skin alone, and the procedure of treatment had never reached the disease; (2) much pain had been caused to the patient, and valuable and irredeemable time had been wasted. He concluded: "In popular language, the cancer is still where it was originally, but grown bigger; and the 'roots' extend from the growth under the armpit right up to the neck." Mr. Lynn Thomas sent us the "cancer" which had "fallen off," together with a sample of the "healing oil" which was said to have been applied. Our analyst found that in the bottle containing the cancer crusts zinc chloride was present in considerable quantity, together with a very appreciable quantity of an insoluble compound of lead which might have been in a soluble form in the application used. The "healing oil" was found to contain 27 per cent. of oil of turpentine, the remainder consisting principally of an ordinary saponifiable oil, probably cotton-seed or olive oil; there was, besides, a fairly considerable amount of a deposit which proved to consist almost entirely of barium sulphate. Elsewhere will be found a short paper by Dr. G. M. Dawkin, of Pontypridd, in which he relates what he saw in the course of a visit to Cardigan. It will be seen that in no case has he known of an unquestionable malignant growth yielding to the Cardigan "cure"; all the "boomed successes" are, he thinks, cases of warts, fibromata, and other non-malignant growths. Special interest attaches to one of the cases which Dr. Dawkin reports, as it seems to have been one of Mr. W. T. Stead's "test cases." It may be well to recall that in the *Review of Reviews* for March, 1907, that undaunted champion of "cures" that fail announced that he would undertake an investigation of the claims of the Cardigan cancer curers. He asked for three or four "unmistakable duly certified cases of inoperable external cancer," and offered to make arrangements with the Evans brothers for their treatment at Cardigan, "on the sole condition that they are willing to have the result of the experiment published with full particulars for the satisfaction of

the public." As we pointed out at the time, the certificates as to the nature of the disease which Mr. Stead asked for were quite inadequate, and he vouchsafed no hint as to what was to be regarded as a cure, or who was to decide that a cure had been effected. But the fact remains that Mr. Stead offered to have the treatment tested, and to publish the results. Has he done so? As far as we know, nothing more has been heard from him on the subject. Dr. Dawkin accounts for one of his cases; where are the others? Probably —if there were any—with the snows of yesteryear. For Mr. Stead's opinion of the art of healing or of its professors we care nothing; in such matters, unlike Brutus, he speaks of that which he does not know. But the publicity which his utterances command through the resonant mask of his journal make him a danger to the ignorant. His "test cases" have now extended to the three year limit; it is his duty, therefore—which in common honesty, to say nothing of humanity, he should not shirk—to fulfil his promise and publish the results of the experiment for which he made himself responsible.

THE SPECIFICATION OF COLOURS.

As the means of communication extend, and intercourse between nations develops, the need for a fixed international standard for the exact determination of colours becomes increasingly necessary. In the journal of the Danish Apothecaries' Association[1] there will be found a valuable paper by Hans Jacob Möller, which suggests a solution of the problem. As early as 1646 the Jesuit Athanasius Kircher attempted to determine colours. In his treatise "*Ars magna lucis et umbrae*" there is a special paragraph devoted to colours: "*De rerum naturalium chromatismis, sive De Colore lucis et umbrae sobole, quae et ars chromatica dicitur.*" This famous scholar of the seventeenth century divides colours into five primary hues, namely, white, black, and three intermedial hues, yellow, red, and blue. In 1704 Sir Isaac Newton took up the task of determining colours, his starting point being the solar spectrum, in which he detected the seven well-known primary spectral colours. Of these only six are visible to the normal individual, for only a very few can see indigo as a separate hue. Colours were also studied by Buffon in 1743, who maintained the correctness of Newton's classification. The first man who endeavoured to determine colours with a view to their purely practical use was the French chemist, Michel Eugene Chevreul. In 1864 he published a collective description of his colour studies. He started with three primary colours—red, yellow, and blue. From these he derived by blending—orange, green, and violet. With these six colours he produced further intermediate hues. Thus, Chevreul constructed his *cercle chromatique* of seventy-two colours. They were further divided into shades which in all numbered 14,421. In 1877 Otto Radde published an international colour scale, which is now out of print. The Italian botanist, Saccardo, in 1891 brought out a small Latin book dealing with colours, especially for geological and botanical use; it, however, comprises only fifty shades. A scheme of international colour determination, which is considered to be thoroughly practical, has been envolved by Paul Klincksieck and Th. Valette. They arranged a colour book on the following principles: (1) To give a sufficiently large number of colour specimens, which were all distinctly different. (2) To arrange the colour specimens according to a known and proved, but easily intelligible, method. (3) To produce them in as durable a form as possible. (4) To collect them in a small book in pocket form; and (5) to omit all colour indications other than the six primary solar spectral colours, and to indicate the colour specimens by a number. The specimens, to the number of 720, are arranged in twenty-four tables of thirty each. A cardboard frame (*mirette*) is provided, which covers all the colours except the one looked at, to avoid colour contrast. The colours are numbered as follows: 1–100, red; 101–200, orange; 201–300, yellow; 301–400, green; 401–500, blue; and 501–600, violet. This *code des couleurs*[2] will be valuable to botanists, zoologists, chemists, and many other scientific workers; artists also may perhaps find it useful.

[1] *Archiv. for Pharmaci og Chemi*, November 14th, 1910.

EPIDEMIC POLIOMYELITIS IN THE UNITED STATES

A WEEKLY report of the United States Public Health and Marine Hospital Service, published on March 3rd and summarized in the *Boston Medical and Surgical Journal*, contains a tabulated statement of the cases of poliomyelitis and the deaths caused by the disease recorded in the United States during the year 1910. Pennsylvania heads the list both in prevalence and in mortality; there were 1,097 cases and 172 deaths in that State. In Iowa there were 638 cases and 161 deaths. In Massachusetts there were 588 cases; the number of deaths is not given. Apparently the epidemic was most continuous in Iowa, for that is the only State from which cases and deaths were reported for every month of the year. The maximum number of cases in any month was 378 in September in Pennsylvania; the maximum number of deaths—64—in the same month and the same State. The maximum number of cases in any month in the entire Union was 1,146, in September; the maximum number of deaths, 182, in August. The total number of cases and deaths of poliomyelitis in the United States during the calendar year was 5,093 and 825 respectively, a mortality of about 13.75 per cent.

CHRONIC SPASM OF THE COLON.

CASES of severe chronic spasm of the colon are sufficiently rare to be unfamiliar, and considering their severity and apparent gravity, the example recently recorded by Dr. R. Schuetz of Weisbaden[3] is worth noting. The illness of the patient, a girl aged 17, the daughter of an excitable neurotic mother, had begun two and a half years earlier with an attack of gastro-enteritis, followed by colicky pains and tenderness over the descending colon; there was obstinate constipation requiring the regular use of purgatives or oil enemata. Nine months later she began to pass membranous mucus from the bowel, and a second attack of gastro-enteritis led to a series of cures at various watering places and sanatoriums. At length she recovered her health, and was able for some time to lead a normal life. An attack of German measles was followed by a relapse, and an operation was contemplated for supposed growth in the neighbourhood of the splenic flexure, but the indisposition of the operator caused its postponement, and meanwhile the patient got well. The improvement did not last many weeks, and when she came under the care of Dr. Schuetz she had been in bed for five or six weeks. She complained of painful spasm over the sigmoid flexure, and of a stabbing pain which lasted many hours and was always worse before and after an action of the bowels, which occurred only after strong purgatives. The stools contained mucus. A portion of the descending colon 2 to 3 in. long was tender, but

[2] *Librairie des sciences naturelles.* Paul Klincksieck, editeur. Leon Lhomme, Succr., 3, Rue Corneille, Paris. Price 11s.

[3] *Berl. klin. Woch.*, 1910, No. 37.

the abdominal wall over it was rigid. The absence of distension and of stenotic gurgling, together with the continuous character of the pain, negatived the notion of an obstruction from growth or twist. Radiographs taken after a bismuth meal showed the ascending colon to be full, and the dark shadow continued to the beginning of the transverse colon; beyond this the faeces formed discrete, rounded, and gradually diminishing lumps; the descending colon was distended with gas. The patient next complained of difficulty in micturition, and this was followed by complete retention of urine, requiring the daily use of the catheter. There was distinct obstruction encountered in passing the instrument, and when belladonna bougies were introduced they had to be held in position while they melted to prevent their expulsion. There was marked diminution of sensibility to touch, pain, and heat over the back and as far forward as the mid-axillary line and in both legs. The difficulty with the urine disappeared after belladonna had been used for two days; the patient was placed on a mixed diet, and all purgatives stopped except regulin (agar-agar with some cascara); the constipation then ceased, the pain grew less, the mucus disappeared, and she gained 14 lb. in weight. Three weeks later she treated her medical attendant to another surprise by presenting an enormous distension of the abdomen, which measured 37 in. in circumference at the umbilicus, and was uninfluenced by the injection of strychnine and physostigmin, but in the course of some weeks gradually disappeared. Four months later the patient was able to play tennis and ride a bicycle, and the sensory condition was almost entirely normal. Dr. Schuetz believes that while the contraction of the bowel was the result of he injurious effect of the purgatives that had been used, and their cessation allowed of its recovery, the main effect was psychical, as the frequent examinations with the Roentgen rays evidently impressed her considerably. Commenting on the doubtful prognosis, Dr. Schuetz refers to the cases of two young girls and a young married woman; in all three the cause was emotional disturbance. The married woman dissolved her unhappy marriage, and, although little benefited by a long course of treatment, is now in good health, but the two girls whose surroundings are unfortunate remain in the same wretched state. One was operated on twice, but nothing was found, and the pain became localized in the scar! A third operator refused further interference. Spasm of the colon is at times secondary to organic disease—for example, chronic appendicitis and removal of a diseased appendix have been followed by diminution of the pain and tenderness, but removal of a healthy appendix did not benefit another patient. These cases can hardly be mistaken for peritonitis, as the abdomen is soft, usually concave, and without tenderness except in the neighbourhood of the contracted gut, and, although chronic hyperplastic colitis gives rise to a hard, thickened, and tender bowel, it is obviously increased in diameter, and not thinner than normal, as it is when spasmodically contracted. Radiography affords valuable assistance in the diagnosis, and an accurate conclusion is of greatest importance, since it is the only guide to the selection of appropriate treatment.

WE regret to have to record the death on March 26th of Dr. L. S. McManus of Wandsworth after a long illness. Dr. McManus, who was fifty-four years of age, was elected one of the Direct Representatives of England and Wales on the General Medical Council in 1907. We hope to publish an obituary notice in an early issue.

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

Milk Legislation.—When the Newcastle-upon-Tyne Corporation Bill came on for second reading last week an instruction was moved and carried by Mr. Courthope to leave out Part xii of the bill dealing with milk supply. On this point Mr. Burns said that he had been asked to express the Government view on the question of milk. He had only to say that in 1909 he introduced a Milk Bill which had for its object dealing with the question of milk production and distribution in a general way by a general Act rather than by private bills. He had intended in 1909 to press that forward, but that turned out impossible in consequence of legislation which, in the opinion of the House, had a greater claim upon its time. In 1910 they had an exceptional session and two elections, and it was impossible, willing though he was, to secure the passing of the Milk Bill. He might say that he was still hopeful this Session—now that he had been in what he trusted might be successful negotiation with those who previously differed from him about the Bill of 1909 and 1910—notwithstanding the exceptional nature of the work for this year, to secure the passing of a general Milk Bill. It was right at this moment he should say that not quite so much harm had been done as was anticipated by the non-passing of the Milk Bill in 1910, because the discussion that took place in 1909 and 1910 in that House and elsewhere had brought home very clearly to the agricultural and milk-producing industries that they must put their house in order, and adapt themselves to the growing requirements of the time with regard to milk supply. During the last four years there had been an extraordinary diminution in infantile mortality. Some people contended that infantile mortality had been largely contributed to by a defective milk supply. Dairymen, farmers, and those connected with the agricultural industry were beginning to see that from the point of view of enlightened self-interest it was wise for them to adapt themselves to producing a cheap, more plentiful, and a more pure milk supply. He trusted that by the introduction of a bill on this subject by agreement of all parties they should be able to accelerate that very useful object.

The Public Health (Scotland) Bill was read a second time and referred to a Standing Committee on Tuesday last. The bill consists of one operative clause which seeks to enact that the powers and provisions of the Public Health (Scotland) Act, 1897, enabling local authorities "to construct and carry sewers within and beyond the district of such local authorities, shall extend and apply to, and, subject to the provisions of the said Act, may be exercised by any statutory trustees or commissioners authorized to supply water within the district of any one or more local authorities in the same way and to the same effect, in relation to water mains and pipes, as any local authority may now, under the said Act, exercise such powers in relation to sewers and sewer outfalls, and all the provisions of the said Act applicable to sewers and drains shall apply *mutatis mutandis* to the water mains and pipes of such statutory trustees or commissioners."

Small-pox.—In answer to Mr. Staveley-Hill, Mr. Burns stated on Tuesday that from the weekly summary of cases of infectious disease notified since January 1st, 1911, to March 18th, 1911, inclusive, 84 cases of small-pox were notified in England and Wales, exclusive of London. He had no information showing the vaccinated condition or otherwise of these small-pox patients. In answer to Mr. Astor, Mr. Burns said that some 2,000 beds were available at short notice for small-pox cases in London, and this number could be largely increased within no long time if necessity arose. Similar information for the rest of the country was not available in any complete form.

Vaccination (Conscientious Objectors).—Mr. Pointer asked the President of the Local Government Board whether he was aware that it was stated in the report of the medical officer of the Local Government Board for the year 1908 that in the counties of Bedford, Northampton, and Leicester the declarations of conscientious objection to vaccination made under the Act of 1907 had exceeded 50 per cent. of the births; and would he say whether any cases of small-pox had been recorded in those counties during the present year. Mr. Burns said that he was aware of the statement referred to. With regard to the second question, he might say that there had been no cases of small-pox this year in forty-six out of the fifty-five registration counties. These forty-six included the three counties mentioned.

Small-pox in Prussia (Deaths).—Mr. Black asked the President of the Local Government Board whether he would explain why the figures relating to the deaths from small-pox in Prussia for the years 1906, 1907, and 1908, which he gave in the House in July last, and those cited by the Registrar-General on page 132 of the Seventy-first Annual Report and on page 134 of the Seventy-second Annual Report were all three at variance; and would he state which statistics were correct. Mr. Burns said that he understood that the figures given in the Registrar-General's Seventy-second Report corresponded with the corrected figures issued by the German Imperial Health Office. Those published in the Seventy-first Report were supplied to the Registrar-General by the President of the Prussian Statistical Department, but appeared to have been provisional or unrevised figures. The figure of 107 in the answer to his hon. friend's question of June 29th last should have been 114. With that correction, the information then given agreed with that in the Seventy-second Report of the Registrar-General.

Health of the Royal Naval College, Osborne.—Major Gastrell put several questions last week to the First Lord respecting the outbreaks of measles and pink eye at Osborne during the present term. Mr. McKenna answered that 115 cadets had had measles, 258 had had German measles. There had been 60 cases of conjunctivitis, popularly miscalled pink eye, but many of them only slight, and in association with attacks of measles. In answer to the suggestion that trained matrons should be appointed, Mr. McKenna said in the opinion of the Admiralty the existing medical staff were qualified to detect the first symptoms of disease, and it was not considered advisable to adopt the suggestion. Conjunctivitis (the disease sometimes miscalled pink eye) could not be said to be prevalent at Osborne. There was an outbreak of it in 1904, and it was considered by the medical authorities to be microbic in character, the organisms being spread by contagion and not airborne. There had been a few sporadic cases since, and during the present term, as he had just stated, there had been a number of slight cases mostly in association with the current epidemic of measles. He would add that pink eye, being an equine disease, had no known connexion with the conjunctivitis to which some cadets at Osborne had been subject. The suggestion that the material uralite, used in the construction of houses, was responsible for the disease was not accepted, and the temporary character ascribed to the buildings arose from the term being used to distinguish them from buildings put up to last a hundred years.

Diphtheria in Herefordshire.—Mr. Webb called attention to an outbreak of diphtheria at Madley, Herefordshire, and to the fact that the Dore District Council had refused to vote a sum of £8 for this purpose; and asked if steps would be taken to substitute the district council by an official sanitary authority for the Dore area. Mr. Burns replied that his attention had been drawn to a newspaper report of this matter, and he was in communication with the local authority in regard to it. He was advised that bacteriological examinations were a great aid in diagnosing cases of diphtheria.

Medical Inspection of School Children (London).—Mr. Wedgwood asked whether the attention of the Board of Education had been given to Sir Victor Horsley's criticisms of the inspection of school children as carried out by the London County Council. Mr. Runciman said that he had seen a newspaper report of a recent speech of Sir Victor Horsley on this subject. He had a great respect for this distinguished surgeon's opinion upon the subjects on which he spoke with special authority, but he was not sure that the organization of the medical inspection of school children was one of them. The Board were cognisant of the circumstances of medical inspection in London, and had recently had important communications with the London County Council on the matter.

Measles Epidemic (London).—Mr. Dawes asked the President of the Local Government Board whether, in view of the serious epidemic of measles prevailing at present, he would make measles a notifiable disease. Mr. Burns replied that he was at present considering what further steps could be taken to deal with this serious outbreak, and the question of making measles a notifiable disease would have his attention. In answer to Mr. Lansbury, who urged that the social and housing conditions should be investigated in the worst districts as regards mortality, Mr. Burns said that he was very pleased to say that that particular point had been dealt with at the several conferences that had taken place during the last few weeks between the officers of the County Council, the Education Department, and the officers of the Local Government Board.

Destruction of Rats and Plague.—Last week Mr. Charles Bathurst put a question as to organization by county councils for the destruction of rats and the cost involved, and Mr. Burns replied that it was the duty of the county medical officer of health to inform himself, as far as practicable, respecting all influences affecting or threatening to affect injuriously the public health of the county, and he was to consult with the district medical officers of health whenever the circumstances rendered this desirable. The county medical officer of health was thus able to coordinate the measures which were taken by the several local authorities for the destruction of rats in districts which were infected or threatened with plague in rats. The county council, however, were not empowered to expend money on the destruction of rats.

The Dresden Hygiene Exhibition and Tropical Medicine.—In reply to Mr. Allen Baker the Secretary of State for the Colonies said that he understood that there would be a joint exhibition from the London and Liverpool Schools of Tropical Medicine at the International Hygiene Exhibition at Dresden, but he had no information as to the form which the exhibit would take. As the schools were not under the control of His Majesty's Government there had been no question of giving instructions. In reply to another question from Mr. Allen Baker the Secretary of State for India stated that he had transmitted the documents relating to the International Hygiene Exhibition, Dresden, 1911, to the Government of India; he had no intimation from the Government of India as to whether it was proposed to send an exhibit to Dresden.

Aliens (Vaccination).—Mr. Astor asked whether aliens were examined by the medical inspector on landing, to see whether they had been vaccinated, and whether any steps were taken to secure the vaccination of aliens who were found not to have been vaccinated. Mr. Masterman replied that this was not a matter which came within the duties of a medical inspector under the Aliens Act.

Scotland.

[*From our special correspondents.*]

Care of the Feeble-Minded.

Though there are several associations in England which undertake the care of the feeble-minded, the only Scottish institution is the Glasgow Association for the Care of Defective and Feeble-minded Children. Starting from a very small beginning five years ago, this useful voluntary institution has been steadily growing. The addition undertaken during the past year has brought up the number of beds to 46. That there is great need for such an association has been abundantly proved by the experience of the Glasgow Association. Though with but few exceptions the children are admitted only on the understanding that a small weekly payment is made for them, the institution is constantly full, and there is a considerable number of applicants on the waiting list. The institution is economically managed, as the average weekly payment (slightly over 8s.) more than covers the working expenses. It is largely taken advantage of by public boards, such as school boards and parish councils, which have to deal with the problem of the education of the feeble-minded. It is certified as an industrial school by the Home Office, and as such has received two cases committed under warrant from the courts. The present arrangements only permit the admission of girls, and the directors are constantly receiving application for boys which they are unable to accept. At the recent annual meeting there was a large attendance, and in seconding the adoption of the annual report, Dr. Macpherson, His Majesty's Principal Commissioner in Lunacy, said that the lunacy officials considered the work of great importance as the beginning of a general movement, and perhaps even the directors were not aware how important was this work they had undertaken. The report of the Commission on the Feeble-minded issued two or three years ago showed that 1 out of every 270 of the population was more or less feeble-minded and unfit for the duties of citizenship—a fact of immense social importance. The moral consequences became obvious when it was realized that the vast number of defective people mixed, without supervision or adequate care, on equal terms with the ordinary population. Lacking in self-control and unable to protect themselves, they readily became the tools and accomplices of vicious people. These feeble-minded people swelled the ranks of the criminals, crowded the prisons, and complicated the question of unemployment. If all the feeble-minded were properly looked after, there would probably be an extraordinary change in the prisons, courts, and streets. The country as a whole was doing nothing to deal with the great problem, but two lines of treatment had been suggested. The eugenic doctrine argued that the production of the feeble-minded ought to be controlled by State regulation, but this view was hardly practicable at present, and belonged to a remote future. The other point of view was that adopted by the Glasgow Association—namely, the isolation of the feeble-minded, their proper care and treatment, and their removal from the temptations to which they were constantly submitted. The institution was doing good work on these lines, and should make its objects more widely known. In a matter of this kind, it was essential to educate public interest and public sympathy. Without this the movement could not go much faster, and to cope with the problem it was necessary to go much faster. At the ratio of 1 feeble-minded individual out of every 270 of the population, there were in Glasgow alone some 2,500 feeble-minded; and, if only 1 out of every 3 of them was not adequately cared for at home and required institutional treatment, that meant that about 500 would require to be provided for. Dr. Yellowlees subsequently pointed out that the problem was really too great for a charitable institution to deal with on an adequate scale. It could but be a pioneer in a work which must eventually be taken up by more powerful hands. Some larger provision was necessary from the State. The problem could not be dealt with simply by looking after feeble-minded children. Though the great object was to train the children that they could control themselves and become self-supporting, in many cases this could not be done, and in the majority of cases the feeble-minded would continue to require supervision.

A Portrait of Emeritus Professor Crum Brown in Calcutta.

On Wednesday, February 15th, a meeting of the Calcutta Chemical Club was held in the Professor's room of the Presidency College when Dr. P. C. Ray, the President, introduced Dr. Aghore Nath, a distinguished graduate of Edinburgh University in the Seventies. Dr. P. C. Ray, who is Professor of Chemistry in Calcutta, was himself a student at the University of Edinburgh from 1882 to 1886, and a fellow student, Professor James Walker, is now Professor Crum Brown's successor. Professor P. C. Ray had presented to the college a portrait of their old and revered teacher, Professor Crum Brown, and the portrait was on this occasion unveiled. The subject of Dr. Aghore Nath's lecture—the amine bases—was specially appropriate, as Professor Crum Brown, in collaboration with Professor (now Sir) T. R. Fraser, was the first to undertake the classical researches on the relationship between the chemical constitution and the physiological action of drugs in the year 1868–69, by proving that these amine bases behaved like the active principle of curare.

The Edinburgh Royal Colleges of Physicians and Surgeons.

On Monday last, March 27th, counsel were heard before the Lord Lyon King of Arms in regard to the petition in which the Royal College of Surgeons claim precedence on all ceremonial occasions over the Royal College of Physicians. The speeches were of a highly technical nature, and judgement was reserved.

Glasgow Hospital Sunday Fund.

The seventeenth annual report states that in the past year 408 churches and 222 Sabbath schools contributed to the fund. The total income was £4,726 19s. 6d., an increase on the previous year of £69 0s. 8d. Of this sum, £4,510 was divided among the infirmaries, the Royal Infirmary being allocated £1,987 12s. 3d., the Western Infirmary £1,712 14s. 4d., and the Victoria Infirmary £809 13s. 5d. During the seventeen years in which this hospital fund has been in existence it has been the means of distributing the sum of £87,000 among these three institutions.

Ireland.

[*From our special correspondents.*]

Women's National Health Association.

The Bray Branch and the Terenure Branch of the above association held their annual meetings last week. A feature of both meetings was the large attendance of the general public, showing the increasing interest taken generally in questions of public health. Satisfactory reports were presented of the work done during last year. By the employment of district nurses working under the control of the local doctors a great deal of useful work is performed at minimum cost.

Research Defence Association.

The annual meeting of the Dublin Branch of the Research Defence Association was held in the buildings of the Royal Dublin Society on Friday, March 24th. Mr. R. H. Woods, President of the Royal College of Surgeons, was in the chair, and there was a large attendance of the general public. The annual report, which was read by Sir Henry Swanzy, stated that the number of members had been well maintained during the past year. The literature of the society has been freely distributed, over 3,000 of the

clergy and laity having received pamphlets. The objects of the society had also been made known by means of the delivering of an address and the holding of a drawing-room meeting. Out of the funds of the branch £35 had been contributed to the parent society, and at the close of last year a credit balance of £60 remained. After the adoption of the report, a committee was elected for the ensuing year, and Professor Schäfer then delivered an address, which will be published. The proceedings closed with a vote of thanks to Professor Schäfer.

NOTIFICATION OF CHICKEN-POX.

The Dublin Sanitary Association has passed a resolution urging the sanitary authorities of Dublin and its suburbs to make chicken-pox a notifiable disease during the next six months. The reasons adduced for the necessity of the step are the possibility of extension of small-pox from England to Dublin, and the risk of small-pox cases being mistaken for chicken-pox.

DUBLIN HOSPITAL SUNDAY FUND.

The amount contributed to this fund during 1910 was £3,340 17s. 9d., which is a decrease of a little over £100 as compared with 1909. Collections were made in 282 places of worship in all, and, in addition to the sums thus yielded, £100 was realized by the hospital football match. The expenses amounted to £227 5s. 6d., which was equal to about 6 per cent. of the total sum collected.

BEQUEST TO DUBLIN HOSPITALS.

By the will of the late Miss Magan of Dublin, who died some months ago, the residue of her personal estate was directed to be divided into three equal parts for the erection of three new hospitals in Dublin in commemoration of the mother of the deceased, of the late Dr. Fleming, and of the late Colonel Bernard. The trustees and executors in administrating the estate found that the sums available were not sufficient for the building of new hospitals, and therefore requested permission of the courts to apportion the sums to already existing Dublin hospitals. This request was acceded to, but considerable litigation followed as to which of the hospitals could be shown to have the best claim on the estate. Last week the Master of the Rolls finally decided in favour of allocating one-third part of the estate to the Adelaide Hospital and one-third to Sir Patrick Dun's Hospital. The destination of the remaining third will be decided later.

England and Wales.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

MANCHESTER AND DISTRICT.

THE MANCHESTER CHILDREN'S HOSPITAL.

THE recent application of the Manchester Children's Hospital for financial assistance from the Manchester Education Authority in respect of the school children referred to the hospital for treatment lends special interest to the figures given in the annual report which was presented at the annual meeting of the supporters of the hospital last week. The report shows that the total number of in-patients during the year 1910 was 2,702, the largest ever recorded. The average stay in hospital was 20.8 days, which is about two days a case less than in 1909 and three days less than in 1908. Each in-patient cost 3s. 2d. a day, against 3s. 3¾d. in 1909, and the average total cost per in-patient discharged was £3 6s. 3d. per head, against £3 12s. 8¼d. in the preceding year. The cost per occupied bed was £58 2s. 2d., against £60 17s. 5¾d. in 1909. There was thus a general reduction in the cost per in-patient and per bed, which is attributed to the fact that the hospital has been worked to its fullest capacity. The number of operations had been 1,351. In the out-patient department there had been 34,135 new out-patients, and the total attendances were 105,534, compared with 30,970 patients and 96,583 attendances in 1909. Excluding Sundays, this gives an average for every working day of 109 new out-patients and 337 attendances. It was stated that the cost per head of the out-patients had been 1s. 6d., as against 1s. 6½d. in 1909. The general financial position showed that the ordinary expenditure had exceeded the income by £2,122. At the convalescent home at St. Anne's 364 children had been treated, and the income of the home fell short of the expenditure by £532.

There is the strongest possible feeling in Manchester that the hospital is being exploited by the Education Committee, in spite of the fact that the education authorities simply insist on the children found on inspection to be defective obtaining treatment somehow and somewhere without systematically referring them to any particular hospital. But the practical outcome is almost the same as if the children were directly referred to the hospital, for to tell parents who cannot afford to pay for medical treatment for their children that they must get treatment or they will be prosecuted is in every way tantamount to driving them to this or some other hospital, or to some practitioner who never gets paid for his services. It is a physical impossibility for the Children's Hospital to treat over 300 children a day in anything like a satisfactory way, and no grant that the Education Committee would ever make would enable it to do so. The parents are bitterly complaining of having to wait often three hours or more in an uncomfortable waiting hall before they get one minute, or even less than one minute's, attention. Many of them have to travel several miles to the hospital, and it is becoming intolerable that they should have to waste the best part of a day to obtain such meagre attendance. In addition to this, quite 90 per cent. of the cases require nothing like specialist treatment, and could quite well be treated by general practitioners, and it is practically certain that if the Education Committee should by any possibility be induced to subsidize the hospital for the treatment of defective school children, the charitable subscriptions will be reduced in nearly the same proportion as the subsidies are raised. As was expressed at the recent meeting of Manchester medical men, medical inspection without treatment is much of a farce; the inspection is being done as far as the limited staff enables it to be done, but the facilities for treatment are totally inadequate, and to subsidize the hospitals for the purpose would simply mean that the Education Committee was shuffling off its responsibility on to other shoulders.

THE CHARITY ORGANIZATION SOCIETY.

The seventy-eighth annual report of the District Provident and Charity Organization Society of Manchester and Salford gives an account of the various activities of the society, in which are included the provision of a sick and relief fund, a special fund for the assistance of consumptives, which at present only amounts to about £300, the convalescent home at Southport, a pensions fund, a savings bank, the Surgical Aid Society, and the Provident Dispensary Association alluded to in this column last week. In addition to these special activities the society does a large amount of work in investigating the circumstances of persons who apply for relief at the various charities, especially the medical charities of the district. Of the cases investigated by the society's officers, 36,480 were referred to it by the Manchester Royal Infirmary, 8,547 by the Salford Royal Hospital, 9,900 by the Northern Hospital, 8,511 by the Ancoats Hospital, 331 by the Victoria Dental Hospital, 760 by St. Mary's Hospital, and 474 by the Manchester Midwives Supervising Committee, the last being in order to ascertain whether the persons were able to pay for medical aid or whether the Supervising Committee should pay the medical fee when midwives had found it necessary to summon medical assistance. Full particulars are given only of the first four named hospitals, for which 63,438 cases were investigated, and it is stated that of these no less than 8,259 belonged to other towns and 1,624 could not be found, having

given wrong or insufficient addresses. Of the remainder it is said that 48,603 out-patients and 1,888 in-patients were suitable cases for free treatment, 2,590 out-patients were in a position to obtain treatment by joining a provident dispensary without depending on charity, 19 out-patients were able to pay a doctor's ordinary fees, and 455 in-patients were able to make some payment for their treatment. Expressed as percentages, of the out-patients visited 5.09 per cent. were found to be provident dispensary cases; and of the in-patients visited, 19.41 per cent. were able to make some payment. The number of visits made by the society's officers was 55,179.

Without detracting in any way from the good work of the society's officers, these figures cannot be accepted as a reliable criterion of the amount of hospital abuse; for in the first place no hint is given as to the standard fixed by the society in deciding suitability for free treatment, and in the second place by no means all the applicants for free medical treatment at the hospitals named are referred for investigation. As a single example, the average number of in-patients at the Royal Infirmary is about 8,000 a year, but only 1,493 were investigated by the society. Moreover, few, if any, of the 8,259 persons belonging to other towns could be investigated, and the fact that they were able to pay the cost of travelling shows that the bulk of them could have afforded to pay something for treatment at home. Further, of the 1,624 cases in which persons gave wrong or insufficient addresses, probably in a large proportion this was done purposely in order to avoid inquiries. Thus the two large sections which probably embrace the greatest number of cases of abuse practically escape investigation altogether. Indeed, the figures given in the report cannot be said to have much practical value except in so far as an investigation made into any particular case may have some deterrent effect.

LEEDS.

Dinner to Sir Clifford Allbutt.

Whenever Sir Clifford Allbutt revisits Leeds—the scene of the most active years of his strenuous professional life—he can be sure of a welcome as sincere as it is cordial, and when it was announced that he had accepted the invitation of the Leeds and District Medical Practitioners' Association to dine with them on the occasion of their second annual dinner, it was certain that the gathering was destined to be a success. Under the presidency of Dr. Hawkyard about 130 medical men and their guests assembled to meet and honour their old friend.

The toast of the evening was in the able hands of Mr. Moynihan, who in the opinion of those who were present voiced the sentiments of the gathering in a way that probably no one else could have done, and who surpassed himself, though that is a hard thing to do, in the grace of his language and in the felicity of his expressions. He said truly that Sir Clifford's position in respect of Leeds was a peculiar, even a unique, one, for it was something like a quarter of a century since he had ceased to be an individual and had become a tradition. His appeal had always been made to a much larger audience than could ever be gathered within the walls of a lecture theatre. He was without doubt the most fecund author and editor of the present day. There was certainly no physician or surgeon of this generation who could match him in one particular: he was absolutely supreme as a master of English prose. Those who wished to know the rhythm and majesty of English prose could not do better than read the writings of Sir Clifford Allbutt. In his works they would find many a polished gem of literary perfection; indeed, the magic and beauty of his words were sometimes so distracting that attention was called away to gloat over their majesty, while something of their message escaped the reader. Yet the message was expressed in words which were the fewest and the most fitting. As an orator among men of the present day Sir Clifford stood absolutely without a rival, at any rate in respect of short speech. No summary of Sir Clifford Allbutt's association with the district, continued Mr. Moynihan, would be complete which did not say something of the loyal devotion and affectionate pride in which he had been held by the lay public. His had been a well-proportioned life from the beginning. In his university he had received that ineffacable stamp which men of the right metal alone seemed able to receive. He had years full of the most beneficent activity when in Leeds, and he performed work of a character which made it absolutely necessary that he, and be alone, should be called to fill the chair of Regius Professor at Cambridge. But in Leeds he had always been looked upon as a Leeds man, and they were now giving him a welcome home. It has seemed well to quote Mr. Moynihan's speech fully from the excellent report which appeared in the *Yorkshire Post*, for it may reach the eyes of some who, from one cause or another, were prevented being present at the dinner.

Sir Clifford was most warmly received on rising to reply, and in a speech which was partly reminiscent, dealing as it did with old colleagues and friends, and partly prophetic in so far as it dealt with the indications which all could see that unless care were taken the work of medical men would be exploited for the public welfare without adequate remuneration, displayed all his old vigour and charm. It is indeed difficult for any one to credit that it was in the year 1884, and at the end of twenty years' service as physician, that Sir Clifford Allbutt retired from the active staff of the infirmary, in which he yet retains so keen an interest.

BIRMINGHAM.

Hospital Saturday Fund.

The Birmingham Hospital Saturday Fund has since its foundation collected the large sum of £436,000, at an expense of less than 5 per cent. Besides giving for many years £10,000 per annum to the various hospital and nursing institutions of the city, the Fund has administered the convalescent homes it possesses in a most economical and successful manner. These homes are as follows: Tyn-y-coed, Llanrhos, the convalescent home for men, in which last year there were 1,230 patients; Marle Hall, Llanrhos, the women's convalescent home, in which there were 1,388 patients; the Red House, Great Barr, the home for children, in which last year 615 children and 110 women were treated. Since the first convalescent home was established nineteen years ago, 37,909 patients have been received—16,744 men, 16,149 women, and 5,016 children. The scheme for the Sir William Cook Memorial Sanatorium for the treatment of consumptive patients has made considerable and practical progress. When the sanatorium is completed it will accommodate fifty patients. Last year the total collection for the fund amounted to £20,375, the largest with once exception since the fund was established, and the number of contributing firms was 2,188, as compared with 2,171 in the previous year.

LONDON.

King Edward's Hospital Fund for London.

The annual meeting of the Governors and General Council of King Edward's Hospital Fund for London took place on March 28th at St. James's Palace under the chairmanship of H.S.H. the Duke of Teck. This meeting is usually of a purely formal character, the affairs of the fund being reviewed and discussed at length at the distribution meeting in December,[1] but on this occasion there were some occurrences of interest. The accounts submitted showed that the total receipts for the year exceeded £205 169, of which sum £76,935 (or very nearly half the total sum distributed, £155,000), represented interest on invested capital. The balance of the receipts was made

[1] British Medical Journal, 1910, vol. ii, p. 1986, and Supplement, p. 463.

up of £34,495 donations and annual subscriptions, some £55,000 in the form of legacies, and £18,000 from the League of Mercy and a few odd items. It was also stated stated that the total distributions made by the Fund since its foundation have now reached over a million and a quarter pounds. The special committee on the out-patient department question, the Duke of Teck observed, had been sitting regularly since January and had made considerable progress with the receipt of evidence. The report of the Distribution Committee on the question of the suspended grant to St. George's Hospital was also submitted and approved. Payment of the grant was delayed, owing to complaints having been made to the effect that the Fund was according its support to St. George's Hospital, although that hospital was making over to the medical school carried on in connexion with it part of the contributions received by it. The answer made by the hospital in general terms was that any sums passing from the hospital to the school were in payment of services actually rendered by it in the treatment of patients, and came well within the terms of the Minute on the subject of the financial relations between hospitals and medical schools drawn up Sir Edward Fry's committee. This explanation having been traversed, the Distribution Committee of the Fund was asked to make a special investigation of the matter before paying the award for 1910. The committee endeavoured to make an estimate of what the payment from the hospital to the school should be by ascertaining the average cost of laboratory work at the large hospitals in London. Only a few hospitals were able to supply useful figures on this point, but they seemed to the committee to justify the conclusion that the corresponding expenditure at St. George's was, owing to some circumstance or other, too much in excess of the average to be regarded as satisfactory. It also received from the governors of St. George's Hospital a detailed account of the fashion in which they and the school authorities together had endeavoured to assess the various amounts reciprocally payable by one to the other. The committee did not feel in a position to decide upon the justness of each of these assessments, and therefore, though convinced that the balance eventually struck seemed to the two authorities entirely just, it thought it best to base its own recommendations on the average expenditure of allied institutions. It therefore suggested that the school should repay to the hospital in respect of the year 1909 some £800.

THE MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN.

It was reported to the Education Committee of the London County Council on March 29th that the General Purposes Committee of the Council has referred to a special committee, chosen from members of the Public Health, General Purposes, and Education Committees, the whole question of the organization of medical inspection and treatment of school children, with regard to which the Education Committee sent a scheme to the Council on March 1st (BRITISH MEDICAL JOURNAL, March 11th, p. 588).

Special Correspondence.

BERLIN.

Schools for Speech-Cripples.—Medical Inspection of School Children in Berlin.—Antivaccinist Propaganda.—Death of Professor Lucae.

FOR nearly ten years now Berlin, in common with other German towns, has devoted special care and attention to the teaching of deaf, or rather partially deaf, school children; in twenty-four municipal schools there are special classes for them, with properly trained teachers. But it is not generally known that since 1907 an entire school has been devoted to these little sufferers, where they are taught by a new method—a compromise between ordinary speech and pure lip-reading—and where they have medical care as well as tuition. Twelve is the maximum number of pupils in each single class. No mentally defective children are admitted, but only "speech-cripples"—that is, children whose defective hearing alone is responsible for their not being able to speak properly. Articulation is carefully taught, and so are lip-reading and a special kind of acoustic exercises. But the teachers' chief aim is to strengthen and develop the interplay of the senses of sight and of hearing. The results so far have been most encouraging. The children very soon lose their helplessness and become teachable, with a prospect of being able to earn a living when they grow up. Each year some of the more advanced pupils have been drafted off to ordinary municipal schools, where they are able to get along with the other normal children very fairly.

But deafness, alas! is only one of the heavy handicaps that press on the child population from the crowded homes of our modern cities. The Berlin school doctors have issued their report of work done in the year 1909–10, and its figures speak an eloquent, a sad, language. No less than 1,462 boys and 1,562 girls, that is, 8.70 per cent. of the little "school recruits" had to be refused admission on account of bodily or mental unfitness. Twenty per cent. of the pupils had to be kept under supervision, and almost 56,000 medical examinations were made; 399 children (305 boys and 94 girls) were stammerers, 2 children showed the symptoms of commencing atrophy of the optic nerve, and 1 of tuberculosis of the lumbar vertebra. Seven children attended school with cannulae in the trachea, there were 6 cases of gonorrhoea and 4 of syphilitic eruptions. Several children suffered from psychoses and were removed from school, and 4 girls, whose dissolute habits and moral degradation made them unfit to associate with other children, were transferred to special homes.

Like the poor, the antivaccinationist we have always with us, even in Germany. He worries the sanitary authorities by refusing to bring up his children for vaccination at the legally fixed age, he gets up petitions, spreads his fallacious arguments and absurd conclusions broadcast, and whips up the agitation until at last even the Imperial Parliament is not proof against it, for it has made its entry into the debates of the German Reichstag. Strange to say, not a few of the members seem not averse to the introduction of a "conscientious objector's" clause on the English model, and this in a country that has succeeded in completely stamping out the fell disease (practically speaking) within a comparatively short period of time by stringent vaccination legislation. The fact is, that the present generation of antivaccinationist Germans have not lived through, or have forgotten, the terrible epidemics of the times before the Seventies of last century, while keeping count of and grossly exaggerating accidents and unfortunate by-effects that are bound to occur in isolated cases among hundreds of thousands of yearly vaccinations. At the last meeting of the Berlin Medical Society, March 14th, Professor A. Baginsky (director of the Emperor and Empress Frederick Children's Hospital) gave a historical survey of the German vaccination laws and their efficacy, and called upon German doctors to be on the alert, lest holes should be made insidiously in the protective fabric, which has done the nation such admirable service. He recalled the labours of the committee of 1884, instituted under the pressure of antivaccinationist petitions, on which doctors of both camps sat. Robert Koch said at that time that not the statistics of morbidity, but those of mortality must be accepted as conclusive. Revaccination was introduced in the German army as early as 1834, and under its influence mortality from small-pox has declined from 75 per 100,000 to *nil*, and in the non-military population (since 1874, the year of the vaccination law which is still in force) from 62 to 0.1 per 100,000. With these figures, that speak a language so plain and clear, it would be absurd to institute a new committee of enquiry. In England the introduction of the conscience clause in 1898 has materially contributed to the recrudescence of small-pox, though the insular position of the country is a safeguard against infection from other countries, while Germany is permanently endangered by its proximity to Russia, Austria, and France. Finally, Baginsky proposed a resolution setting forth that the Berlin Medical Society, in view of the late discussion in

the Reichstag, declares its conviction of the absolute necessity for upholding the vaccination law of April 8th, 1874. The resolution was carried without further discussion.

August Lucae, the otologist, in his time one of the celebrities of the Berlin University, from which he had retired some years ago, died last week, at the age of 76. He was extremely musical, and when he began his medical career Virchow, recognizing his great talent and his interest in the physiology of the ear, induced him to devote himself to the speciality, at that time little cultivated in Germany. Lucae then worked as assistant under Politzer and Koenig in Vienna, and spent some time in Paris, but his chief impetus was given him in London by Toynbee, under whose influence he remained for some time. Lucae was chief of the well-known clinic for ear diseases in the Ziegelstrasse; among his researches the best known are "The Conduction of Sound through the Bones of the Head and its Importance for the Diagnosis of Ear Diseases," and "The Origin and Treatment of Subjective Sensations of Sound."

BUDAPEST.

Neurasthenia in Women.

Some interesting statements with regard to neurasthenia in women were made in a recent address by Dr. Maurice Porosz, in which the speaker (who has a very large practice in neurasthenic and hysterical cases) remarked that he had frequently noticed that women who came to him for nervous and mental troubles were married to men who found it necessary to consult him for impotence or quick ejaculation; and his large experience in such matters had led him to believe that there existed a close connexion between the neurasthenia of the wife and the sexual impotence of the husband. He made it a rule, therefore, when consulted by the former, to question them on the delicate matter of their sexual life; and the results amply justified his action, since the majority of his female patients lost their neurasthenic symptoms directly he had cured their husbands. As an instance he mentioned the case of a widow who had been under his care, and who had married, *en secondes noces*, a lawyer, aged 36. During the first year of her second marriage the wife suffered greatly from general nervousness and frequent nervous headaches; and during the second year she discovered that these distressing symptoms generally followed nights during which she had had intercourse with her husband, and particularly when her *libido* had remained unsatisfied through the rapid ejaculations of her husband. Upon comparing her present sexual experiences with those of her first marriage, she came to the conclusion that her husband was ill, and, in spite of his indignant denial, persuaded him to consult the family physician. Upon examination the latter found his patient to be suffering from prostatic atony, defaecational spermatorrhoea, which had been preceded before his marriage by frequent nocturnal pollutions. During the first month of marriage he frequently cohabited with his wife, but this gradually became more and more difficult, and was always followed by great exhaustion. About the same time his wife developed symptoms of nervousness and restlessness, due to his abstinence from repetitions. She consulted a neurologist, who advised her to try some hydrotherapeutic treatment, from which she obtained no apparent benefit; but she grew steadily stronger as her husband's condition improved, and on his complete restoration to health her symptoms disappeared entirely, a state of things which lasted some years. Another case mentioned by Dr. Porosz in support of his theory was that of a married woman, the wife of one of his patients, who developed symptoms of melancholia, and complained of the persecution of her neighbours, whom she declared looked upon her as her husband's concubine rather than his legal wife. She refused to see people, and grew so much worse that she was placed in a sanatorium. During her absence her husband consulted Porosz for frequent micturition, quick ejaculation, and erectional disturbances. He told the doctor that throughout the first year of marriage he had cohabited with his wife almost every day, but latterly his ejaculations had grown rapid and his erections more and more feeble, so that his wife could not reach the orgasm, which had the result of making her very jealous and discontented. This led him to cohabit still less, so that during the previous year as much as one or even two months passed without a single coitus, though he had previously made it a rule to keep a pause of two weeks only. This state of affairs lasted for about two years, and during the last months the wife developed symptoms of insanity. After a stay of several weeks under proper treatment at a sanatorium, she returned home in a normal condition, save for an occasional display of jealousy during the first few weeks after her return. During this period, however, the husband's cure was completed, and his wife is now completely restored to health, sleeps well, wakes refreshed, and is able to attend perfectly to her household affairs. The connexion between the interrupted sexual intercourse and the malady of the wife is in this case perfectly obvious, remarked Dr. Porosz in concluding his address. The wife had got accustomed to extremely frequent intercourse, and suffered from the lack of it, which she ascribed to unfaithfulness on the part of her husband, a belief which naturally enough gave rise to jealousy. This belief, once firmly rooted, became an obsession, and gradually warped her judgement. Then the central nervous system became disturbed, and hallucinations were the result. The rest and change at the sanatorium combined to readjust the mental balance, but a radical cure was only effected by the commencement of a regular and systematic sexual life. Such cases as the foregoing were by no means scarce, and many unhappy marriages might be avoided if family doctors took more pains to discover the causes of neurasthenia in women, and did not hesitate to inform themselves as to the sexual life of their patients.

Correspondence.

THE HONOUR OF THE MEDICAL PROFESSION.

Sir,—I read your article on the honour of the medical profession with particular interest, the more so because during my year of office as Lord Mayor of Cardiff I had the honour of having as my guest at the Mansion House the celebrated surgeon, Dr. Lucas-Championnière. You will remember that he visited Cardiff on the occasion of the dinner and the presentation of a large sum of money by the members of the medical profession to Mr. J. Lynn Thomas and Dr. Skyrme in connexion with an action brought against these gentlemen by a patient. I was present at the hearing of the action in Cardiff and heard the now distinguished President of the Divorce Court use the following words, quoted in the letter of Mr. Lynn Thomas in your issue of January 28th, 1911: "Questions of this nature would be a matter of interest for a learned medical society to discuss, but not a jury of laymen to pass a verdict upon," with which opinion I unhesitatingly agree. From my recollection of the case, there was no serious question of fact involved; it was entirely one of the correct treatment of a fracture. Who were asked to decide? Twelve "good men and true" undoubtedly, but not one of them probably even possessing a first-aid certificate—excellent men in their own particular vocations, but surely not the tribunal which should be called upon to give a verdict upon a highly technical question of surgery. In that verdict there was at stake something far more important than the plaintiff's claim — namely, the professional reputation of the defendants. It is not like ordinary litigation arising out of breaches of contract or of tort, where statute or case-law define the respective positions of the parties, the judges being asked simply to interpret the law. The judges are bound by precedent, and there is a final court of appeal. Not so a medical practitioner. He is not bound by precedent—in fact, he may create one himself. Circumstances vary, conditions arise continually of an exceptional character calling for exceptional and immediate treatment. A precious life, possibly, is in peril. He has no time to think of what Dr. Popoff or Dr. Finishem would do in the circumstances. He has to decide for himself; a matter, therefore, probably of forming an opinion quickly. In the event of any question arising as to the propriety of the treatment, who should be his judges? Unquestionably men who, by their education, training, and experience, are rendered capable of forming a just and unbiassed estimate.

It would not only be in the interest of the profession but also in the public interest if such a tribunal as that referred to in your article were created. Call it by any name you like. All that would be necessary to satisfy the public would be that the tribunal should be composed of men of the highest integrity and distinction in the profession. Supposing that public opinion is not sufficiently ripe for the appointment of such a tribunal as the one suggested by you, there would be no difficulty, I apprehend, in securing legislation for the appointment of assessors in all medical cases, assuming the profession were united. Either party to have the right to call for them, similar to what now obtains in the Admiralty Court in London. There you have Trinity Brethren assisting the court in collision cases. You have Admiralty assessors sitting with the judge in the county courts. You have assessors also in the police courts sitting with the stipendiary magistrates in Board of Trade inquiries. These men are selected because of their technical knowledge and experience, and therefore are called upon to *assist* the court. Again, under the Workmen's Compensation Act, you have medical referees. The county court judge, when there is a conflict of testimony, refers the medical question to the medical referee appointed under the Act. If it is considered necessary or desirable that the court should be assisted by technical advisers where probably only a question of seamanship is involved, *a fortiori* should the court be *assisted* when it is a question of the treatment of a patient and the professional reputation of a medical man. Writing not as a medico but as a member of the legal profession, I am strongly in favour of such a change as I have indicated above. Faith in the treatment and in the medical man himself plays so important a part in the cure of many ailments, that everything possible should be done to strengthen this faith.—I am, etc.,

LEWIS MORGAN
(Alderman).

Cardiff, March 22nd.

TO HELP THE BRITISH MEDICAL BENEVOLENT FUND.

SIR,—The appeal made by Professor Howard Marsh in the JOURNAL of March 18th, 1911, on behalf of the British Medical Benevolent Fund, will, I trust, receive cordial support from all who can possibly afford to give. Dr. Fothergill and "E. C. B." in the JOURNAL of March 25th, 1911, offer suggestions which may serve well, provided there is some one, paid or not paid, always ready in and out of season to bring the good work of the society to the notice of medical men. In the absence of such a man or men, who make it their business to collect for this laudable object, the work must often bring feelings of disappointment, both with the response to the appeal and with the inability to render help where really needed.

From such and other considerations I have for some years advocated among personal friends a scheme which, at any rate, deserves careful thought from the members of the Association. This scheme is based upon the principle of insurance, and would be compulsory on every member. The capital would be obtained from an entrance fee levied on each member—say the sum of £5. If the present members were to subscribe £5 each, a sum of about £100,000 could be forthwith raised, and the income derived from this alone would go a long way towards making full provision for a poor medical man's widow and the education of his children, if any, together with help to the needy members who may be in distress from illness or misfortune or both. By one single payment a young medical man—though it is true that as a general rule he has no capital to spare—could make a moderate provision for his widow and for the education of his children, and to secure this should, I maintain, be his first aim, if by the united action of the members of the Association it can be done at such a small sacrifice. My idea would be not to give where plenty is left, but to supplement where, in the opinion of a local body of members of the Association, guided by definite rules, help is needed not only for the widow to keep and bring up the family but also to educate the children, much as if the father had been saved to do his work and provide in full.

The profession of medicine can hardly plead poverty, and it is scarcely becoming to appeal to the public whenever a distressing case arises. Where a man makes untold sacrifices for the community and dies in consequence, as now and again happens, then a public appeal is welcomed, not so much because he has left his widow and family without adequate provision, but because he has rendered a service which appeals to humanity and humanity endeavours to make some amends. We should, it seems to me, provide for ourselves, and we can well and easily do so if the Association as a whole endorses a proposal similar to the one I have ventured to make public. Further, it is my firm opinion that only by some such means can we make the Association what it should be to one and all of us—namely, a real help, whether it be in promoting our knowledge of the sciences and practice of medicine, in guiding us in our professional conduct, or in helping us to make the most of our circumstances. Perhaps there is some member who is willing and able to work out such or a similar scheme, and thus show the Association whether it can be made possible or not. An entrance fee of £5 cannot, I think, be regarded as beyond the reach of any medical man, for even supposing he has to borrow capital to start practice, it will make but little difference to add this odd £5.—I am, etc.,

JOSEPH GRIFFITHS.

Cambridge, March 28th.

MEDICAL TREATMENT OF INOPERABLE CANCER.

SIR,—My attention has been called to a letter from Dr. Alexander Haig upon this subject in the BRITISH MEDICAL JOURNAL of January 14th. Dr. Haig invites co-operation in trying the effect of "uric acid-free" diet upon patients suffering from inoperable cancer, stating that he has seen "cases that gave the impression that by alteration of diet we may sometimes cure."

I am able to meet Dr. Haig's difficulty in getting suitable cases for this trial of his diet, as I have twenty patients suffering from inoperable malignant disease continuously under my care in the wards of the Cancer Hospital. The Medical and House Committees of this institution welcome the scientific trial of any reputed remedy for cancer, always provided the use of such remedy does not in the end entail more bodily or mental discomfort than the disease from which the patient is suffering. I am, of course, unable to transfer these patients to the hospitals in which Dr. Haig is directly interested, but I am prepared to set aside the 30 or 40 cases (which Dr. Haig considers would constitute a good trial of his treatment) to be dieted on whatever lines he may lay down, assuring him that such lines will be most strictly carried out. I should reserve to myself and to my assistant the right of supervising the usual clinical and pathological observations now being made upon all our cases, and should of necessity retain my responsibility for the patients' welfare to the committee of the hospital in the matter of deciding whether or no the treatment should be continued in any case in which the effect might seem undesirable. Neither of these reservations, however, would impair Dr. Haig's efforts—indeed, I hope the former reservation would prove an assistance to him. I may add that it would be easy to select a sufficient number of patients fulfilling Dr. Haig's sole desideratum—that they should carry an expectation of life of at least six months.—I am, etc.,

THOMAS J. HORDER,
Physician to the Cancer Hospital,
London.

London, W., March 27th.

BROCA'S APHASIA.

SIR,—In his able and interesting address on aphasia, reported in the BRITISH MEDICAL JOURNAL of March 18th, p. 605, Professor Saundby has hardly, I am afraid, done justice to the opinions of some of the writers on aphasia.

In the comments on his Case 1 he has either failed to express clearly what he means, or he has misunderstood what Professor Wyllie has written in explanation of why it is that a lesion subjacent to Broca's convolution, without involving the convolution, produces the subcortical or infrapictorial motor aphasia, whereas a lesion in the internal capsule does not produce aphasia, but only dysarthria. The views of Wyllie will be found at pages 422 and 423 of his book on the *Disorders of Speech*.

It seems to me that Professor Saundby has made the mistake of supposing that the "callosal speech tract" Wyllie refers to as being cut by a lesion subcortical to Broca's convolution is a tract coming *from* the third

frontal on the right side, joining the direct tract from Broca's convolution on the left side, and then passing down the internal capsule on the left side, whereas the "callosal speech tract" is a tract passing *to* the third frontal on the right side from Broca's convolution on the left side, and therefore carrying impulses from Broca's convolution through the corpus callosum to the right hemisphere, and by the internal capsule on the right side to the pons. A limited subcortical lesion between the internal capsule and Broca's convolution can, therefore, interrupt this tract as well as the direct tract, whereas a limited lesion in the internal capsule is not likely to interrupt it, because in its course to the corpus callosum it has diverged from the direct tract.

A subcortical lesion may thus produce infrapictorial motor aphasia, as was shown in Professor Saundby's case, although the lesion in his case can hardly be described as a limited one, whereas a lesion in the internal capsule produces only dysarthria.

Professor Saundby says it is difficult to see why a lesion which severs the fibres before they reach the internal capsule should be capable of producing aphasia, but after they have combined together and form part of that band of fibres should not do so. The explanation is as given above—namely, the callosal speech tract does not combine and form part of the internal capsular band of fibres; it diverges above the level of the internal capsule and crosses in the corpus callosum to the opposite side. This explanation has hitherto been accepted, and is as satisfactory whether Broca's convolution be considered a speech centre or not; in other words, whether or not Marie's position be accepted or not. Nor does Professor Saundby, as far as I understand him, put forward any other explanation, although from his remarks—

> This explanation may satisfy those who believe that the function of the third left frontal convolution has been established, and are ready to accept any excuse for those awkward facts which do not conform to this view—

he apparently does not accept this one.

I am not at present discussing whether the views of Marie will ultimately be found correct or not. Many hitherto inexplicable facts are explained by them; but, on the other hand, it is difficult to reconcile some known facts with his views and this particular form of subcortical motor aphasia, and the points raised by Professor Saundby are some of them.

It has hitherto been supposed that a limited lesion in Broca's convolution and one subcortical to it can produce a "motor aphasia" or "anarthria" as some prefer to call it, whereas a lesion in the internal capsule only produces dysarthria. If Marie's views are correct, Broca's centre has nothing to do with speech, but the neighbouring motor centres are the grey matter or motor centres from which the nerve tracts concerned in the production of vocal and oral speech arise, and are merely motor centres like the others in the Rolandic areas.

A lesion in those centres should differ little in its symptoms from a lesion of the fibres coming from those centres in any point of their course down to the bulb. Is this a clinical fact or is it not?

Only accurate clinical and pathological observation can settle it, and with its settlement must Broca's centre either be allowed to retain the position that it has hitherto held for nearly fifty years as being probably the best known and one of the most important convolutions in the cerebrum or be relegated to the position of one of the centres with a much talked and written of past.—I am, etc.,

WILLIAM ELDER, M.D., F.R.C.P.E.

Leith, N.B., March 25th.

THE CARDIO-SPLANCHNIC PHENOMENON OF ABRAMS.

SIR,—In the correspondence last year on the influence of posture in physical examination, Dr. Gordon stated that his observations on attitudinal changes affecting the rightward edge of the cardiac dullness were opposed to those of Abrams, and asked which was right, Abrams or himself. Now, Dr. Gordon declares that he is right and Abrams wrong. But I think it can be shown that he is mistaken in his deliverance.

Dr. Gordon has never made plain whether he is dealing with the superficial dullness only, or with, in addition, the deep dullness. This was pointed out last year by Sir James Barr, who, I think, described Dr. Gordon's diagrams as denoting a "compromise." In making his quotations from Abrams, Dr. Gordon omits to supply a very essential statement, namely, that the phenomenon in question relates to the deep dullness. Not only is this stated in the text, but the description underneath the photograph accompanying the paper in Dr. Abrams's book says that the light area is the superficial dullness, and that the dark area to the right of this, the deep dullness, is the expression of the cardio-splanchnic phenomenon. When Abrams states also that palpatory percussion should be employed, it becomes still more evident that he cannot be considering the easily defined and more limited area described by Dr. Gordon. As to the remarks of Dr. Gordon that Abrams is confounding the sounds, they may be dismissed as little likely to apply to such a master of technique. Dr. Gordon is doubtless right in his opinion, so far as the superficial dullness is concerned, but this is a very different thing from meaning that Abrams is wrong.—I am, etc.,

London, W., March 26th. A. G. AULD.

CONGENITAL HEART-BLOCK.

SIR,—On page 593 of the BRITISH MEDICAL JOURNAL, published on March 11th, 1911, I find a communication from Dr. Thomas Lewis regarding an article entitled, "Congenital Heart-Block," etc., by Drs. Fulton, Judson, and myself, which appeared in the *American Journal of Medical Sciences*, 1910, p. 339. In brief he makes the point that the tracings do not, as stated, demonstrate heart-block.

I have restudied the tracings as published together with a number of others in my possession and regret to state that I believe Dr. Lewis to be entirely right in his contention, and that I have been in error in interpreting the tracings as evidences of auriculo-ventricular dissociation.

I wish to take this opportunity of entirely absolving my *confrères*, Drs. Fulton and Judson, of any participation in this mistake. The tracings were made and construed by myself alone.—I am, etc.,

Philadelphia, U.S.A., March 20th. GEO. W. NORRIS.

LADY HEALTH VISITORS OR WOMEN SANITARY INSPECTORS?

SIR,—In pursuance of the correspondence that has recently appeared under this heading, will you allow me to draw your attention to the fact that there exists a strong feeling among both women sanitary inspectors and health visitors that these two offices are best combined in one person. If sanitary inspection were a mere question of drainage work and plumbing, it would be another matter, but as Dr. Bostock Hill has pointed out, this is not the case. In the poorer class of house, plumbing and drainage work is reduced to the barest minimum, and what there is is usually outside the house, and yet these houses are often most insanitary. The absurdity, therefore, of sending a woman sanitary inspector into such houses and forbidding her to look at the children, is surpassed by the folly of sending a health visitor to the children and telling her that the sanitary condition of the home is no concern of hers.

Dr. Bostock Hill states that he considers the woman sanitary inspector an anachronism. We do not think that this opinion is based on actual observation of our work, and we understand that Dr. Hill's health visitors (who are, we believe, some of the most contented officers in England) are largely employed in sanitary inspection, and find it most interesting. This is not in the least surprising. No really zealous medical officer of health could afford to ignore the woman's point of view in sanitary work, however firm his opinion that she had no business to hold views, and no woman engaged in public health work could fail to take an interest in sanitary administration.

The trouble seems to be in the title. Dr. Bostock Hill objects to the term "inspector" as applied to a woman; we object even more strongly to the term "visitor" as applied to officials. May we not leave that title to the voluntary worker?—I am, etc.,

M. CAREY,
Chairman,
Women Sanitary Inspectors Council.

London, S.W., March 22nd.

SIR,—I have followed with interest the correspondence under the head of "Lady Health Visitors or Women Sanitary Inspectors," and I think, perhaps, my experience may be of interest, as I am one of the few women doctors who has herself worked as an official health visitor. I may say that my medical qualifications are M.B., B.S.Lond., and D.P.H.Camb.

After receiving the latter diploma I wished to obtain some first hand experience in public health work among infants and children, and worked under Dr. Meredith Richards, M.O.H. for Croydon. Here some portion of my time was spent in visiting the homes of newly born infants and endeavouring to give help and advice to their mothers. In this work it was not my knowledge of sanitary law that helped me most, but the knowledge I had gained in my midwifery training and the post-graduate work I had done in children's hospitals. Of course, where there were obvious defects in the drains, etc., these were reported to the sanitary inspector's office, but no regular inspection was attempted by me as health visitor.

The value of a woman in the capacity of a health visitor lies in her knowledge of the laws of health which must be observed in order that an infant may thrive, and in her possessing the tact and human sympathy by which she is able to induce the mother to obey these laws. To understand an infant's needs requires a long training, and the ideal qualification for a health visitor is a thorough midwifery course, including work in the homes of the poor, and added to this further training in a children's hospital. This being obtained, a very small knowledge of drains and sanitary law will suffice, just enough to enable the health visitor to report anything which is obviously wrong. For a woman to spend any portion of her time as an ordinary sanitary inspector is a waste of good material; a man can do that. A woman's province is *persons*, and above all *children*, and not *things*, and her place is as a helper and adviser and not as an inspector of nuisances, and if she acts ever so little in the latter capacity it weakens her power in the former.

The difficulty is to get the class of health visitor which I have indicated. The training is one extending over three or four years, and the pay as a health visitor is small and the work so arduous that few can do their duty and continue at it for any length of time.—I am, etc.,

Kensington, W., March 23rd. WINIFRED WARNER.

SIR,—On perusing Dr. Lawrence's letter in the JOURNAL of March 25th I cannot but feel that the difference between us is to some extent one of terms and methods. We both appear to want the same work done by our women officers, but do not agree as to the way this can best be achieved Dr. Lawrence thinks it can best be done by a woman educated and holding office as a sanitary inspector, while I, and I think a good many more, believe that the training of the sanitary inspector is not well suited to produce the best type of female official. Apparently this is the view of the Local Government Board and its advisers, for in your same issue it is noted that a bill has been introduced by the President of the Board to enable local authorities to appoint health visitors for the purpose of giving advice as to the proper nurture and care of children under 5 years of age, and as to the promotion of cleanliness. If it were thought that a woman sanitary inspector was suited for this work there would have been no necessity to introduce such a bill, but as a matter of fact this is simply a means of giving force to a want long felt by those who believe that in the future public health must develop on somewhat different lines than it has done in the past.

Dr. Lawrence says:

> Dr. Bostock Hill is wrong in thinking that I wish a woman to supersede a man inspector in my department. I want to get one properly trained to do the work that either her male colleague cannot do at all because of their sex, or that for cognate reasons they cannot do half so well.

I am pleased to have his assurance on this point, because much of his criticism of the Sanitary Institutes examination falls to the ground. This examination was established to give woman an opportunity to show that they had a general knowledge of what is called inspectors' work, and had at the same time acquired some insight into matters which for a woman's work in hygiene some of us think are more important, namely, elementary nursing, the care of infants, etc. The syllabus of the examination shows this, and I can assure Dr. Lawrence that not only is just as much required at the examination from the health visitor as from the inspector, but that the average candidate is, as far as I can judge, a better educated person altogether.

One other point raised by Dr. Lawrence deserves comment—namely, the insufficient training required by the institute. Let me at once say that I should like to see an extended training, but in matters of this sort we must "hurry slowly." When qualifications in medicine were first instituted, the training required was very different from that now necessary. I hope that in the near future it will be possible to increase the demands on candidates in this direction. I cannot, however, agree with Dr. Lawrence that three months with a medical officer of health would be a sufficient training for the work even now demanded. Neither do I attach much importance to the opinion of the coach who has favoured Dr. Lawrence with his view on the standard of the examination. The last time I examined candidates for the institute two-thirds of those who presented themselves at my table failed to reach the necessary standard, so that apparently many of them find it difficult to reach the alleged low standard of the present time.

In conclusion, I would say that I think Dr. Lawrence does not treat quite fairly my colleague, Dr. Louis Parkes, when he purports to quote his final statement "that women who have passed the institute's examination for health visitor are no good as sanitary inspectors of a public health department." I have referred to Dr. Louis Parkes's letter, and find that what he says is as follows:

> The title of "Lady Health Visitor" is not used by the Royal Sanitary Institute, nor has the institute ever suggested that the training or examination for women health visitors would be appropriate for the post of inspector of nuisances.

The interpretation put on this by Dr. Lawrence is hardly justified. The training of the two officers is quite different, the scope of the examination is different, and, as I believe, the work to be done by the officers has but little in common.—I am, etc.,

Birmingham, March 27th. A. BOSTOCK HILL.

THE "NURSE" OR THE DOCTOR—WHICH?

SIR,—The question whether the doctor is to submit to accept a position ancillary to the unqualified woman practitioner has to be faced; it is one which affects nearly every village in the kingdom.

Illustrative of this the following. Being called in urgently to a primipara, the wife of a well-to-do working man in a comfortable cottage, I found she had frittered away her energies in various ways, and that progress was feeble and troublesome. The os was dilated and the waters had mostly escaped "with a rush" some hours before I was called. With a good deal of trouble and by aid of rather large doses of chloral hydrate I got the patient to rest and to sleep, and some thirty hours later the birth occurred. But whereas when I went the first time the occiput was in the usual position, when the birth occurred the face was anterior and the perineum suffered. This was no fault of the nurse, of course, at all; she did her part very well, and seeing this I was content merely to superintend, more especially as I came in only when the head was partly through. So that I was up a great part of two nights, I had to pilot the woman through the period of inertia with aid of drugs, and I had to stitch up a bad tear. In these circumstances I think it was not discreditable to feel somewhat sore when I took my part some six days later in the following conversation: "I think nurse deserves very great credit." "Most certainly," I said, tentatively. Then she added: "Yes, the greatest credit—for everything," with impressment. The perineum repair is quite successful.

Which will the women of England choose—for I think they must make their choice—the unqualified woman practitioner or

February 13th. THE DOCTOR?

PROPOSED AMENDMENT OF THE DENTISTS ACT.

SIR,—Your editorial article with the above title, which appears in the last issue of the BRITISH MEDICAL JOURNAL,

is an eminently just and fair comment on the present political situation in the dental profession.

While there are, certainly in some quarters, signs of "the unqualified multiplying till they destroy themselves," and of "the public appreciating the value of the educated dentist," this is small comfort to the young L.D.S. who is starting practice and has to face the wiles, opposition, and ridicule of the quack.

The reason why there have been such large accessions to the ranks of the unregistered during recent years is the introduction of local anaesthesia for the purpose of extracting teeth in a so-called "painless" manner.

The advertisement pages of the March number of a quarterly periodical issued by a body of "Extractors and Adaptors of Teeth" contain fourteen advertisements of local anaesthetics. On pp. 105 and 106 of the text occur these words:

Its (the proposed Anaesthetics Bill) apparently modest clauses were much more dangerous and far-reaching than at first sight appeared to be the case. It was drafted with a subtlety and cunning which would have reflected great credit upon the framers had the cause been a just one and its purpose honest, for, whilst professing to be a bill dealing with anaesthetics, it was in reality meant to make the practice of dentistry an impossibility by members of the Incorporated Society, since without the use of anaesthetics and "drugs which produce insensibility to pain" no dental operation is possible. It was also intended to hit the pharmacist in the practice of his calling. It was unjust, inasmuch as it ignored the established rights and privileges of existing practitioners, and it was dishonest, as its real purpose was not "the safety of the public," but a monopoly for the registered.

All these people want is to "pull out" and "put in" teeth. I am convinced that if the Anaesthetics Bill as at present drafted could be passed by the legislature dental quackery in the United Kingdom would receive its *coup de grace*.—I am, etc.,

London, W., March 25th. A. Hopewell-Smith.

STANDARD BREAD.

Sir,—In view of the present agitation in favour of the so-called "Standard Bread," the following extract from Dr. Robert Hutchison's article on Dietetics in the latest edition of Allbutt's *System of Medicine*, vol. i, may be of interest, especially as I believe the author's name has been freely used in furthering the campaign. He states:

The average composition of bread prepared from white flour and from whole wheat meal is as follows:

	White Bread.	Whole-meal Bread.
Water	40.0	45.0
Protein	6.5	6.3
Fat	1.0	1.2
Starch, etc.	51.2	44.8
Cellulose	0 3	1.5
Ash	1.5	1.2

It will be noticed that owing to the greater amount of moisture which it contains, whole-meal bread is not appreciably richer in any of the nutritive constituents than white. On the other hand, digestive experiments show that the absorption of whole meal bread in the intestine is considerably inferior to that of white bread, so that the supposed superiority of the former as a source of nutriment is really based on a fallacy.

It may be argued that this comparison does not apply as between white bread and "standard bread," but it does, if only in a somewhat lesser degree; and in any case some of the more or less extravagant claims that have been put forward have referred to whole-meal bread, as mentioned in your recent editorial article, which for its calm scientific manner of dealing with the subject may be commended to certain members of our profession whose enthusiastic utterances are not justified by the facts.—I am, etc.,

Stephen G. Longworth.

District Asylum, Melton, Suffolk, March 27th.

PART-TIME MEDICAL OFFICERS OF HEALTH.

Sir,—We learn, from a recent Supplement to the British Medical Journal that the Council of the Association propose to recommend to the next Representative Meeting an amended form of the now famous Minute 234 (1909). It would follow from this amendment that, "as a rule," no medical officer of health should engage in any kind of consultative work, or hold extra-official appointments, such as those of teacher or professor of hygiene. It is not, however, clear whether or no it is intended that the "official" duties which are to be allowed to medical officers of health by the Association should embrace those suggested by the Local Government Board—namely, those of a public vaccinator, factory surgeon, police surgeon, and Poor Law medical officer.

We do, however, note with satisfaction that it is no longer proposed to differentiate, in respect of security of tenure, between whole and part time officers. This is the more important, inasmuch as the new policy of the Local Government Board is apparently not so much directed to the extermination of part-timers generally, as to their conversion from part-time officers engaged in private practice to holders of omnibus appointments. There is some reason to believe that this policy is not so much dictated by any dissatisfaction with the work actually done by the part-timers who are engaged in practice as to the difficulties caused by the unnecessary jealousy of other practitioners. As the Medical Secretary of the British Medical Association observes, in an approved official letter we have just received:

Many private practitioners are of opinion that it is on the whole easier for them to co-operate satisfactorily with medical officers of health who are not at the same time their competitors in private practice than with those who are.

This feeling has apparently found expression in the declarations of policy of the British Medical Association, and unless those practitioners who hold public appointments bestir themselves, we may in a few years see its results in the removal from private practitioners of all opportunity of holding part-time public appointments of whatever nature.—We are, etc.,

F. G. Crookshank,
Chairman.
D. A. Bellios,
Honorary Secretary.
Association of Medical Officers of Health.

Wimbledon, S.W., March 22nd.

Universities and Colleges.

UNIVERSITY OF LONDON.

Medical Entrance Scholarships.

A combined examination for twenty-two medical entrance scholarships and exhibitions, tenable in the Faculties of Medical Sciences of University College and King's College, and in the Medical Schools of University College Hospital, King's College Hospital, St. George's Hospital, Westminster Hospital, and the London School of Medicine for Women, has been fixed to be held in London by the London Intercollegiate Scholarships Board on Tuesday, September 19th, and following days. Application should be made to the Secretary of the Board, University College, Gower Street, London, W.C., for forms of entry.

UNIVERSITY OF DURHAM.

The following candidates have been approved at the examinations indicated:

First M.B. (*All Subjects*).—*W. Stott, †C. H. Keay, †E. J. Tyrrell, A. F. B. Dove, J. D. Ferguson, Mary S. Gordon, N. A. Martin, C. R. Smith, C. G. Strachan.

First M.B. (*Elementary Anatomy and Biology only*).—H. G. B. Dove, Ethne Haigh, G. Irving, E. E. D. Lau, J. E. Measham, W. M. Pettigrew, J. D. Proud, B. Sergeant, A. Smirthwaite, A. C. Taylor. *Chemistry and Physics only.*—G. G. Baty, W. J. Bowden, J. F. C. Braine, P. A. Clements, C. C. H. Cuff, H. H. Elliot, F. W. Harlow, J. D. Johnson, D. R. Jones, H. L. P. Peregrine, D. O. Richards, P. Savage. *Elementary Anatomy.*—W. Herbertson, B.Sc.

Second M.B. (*Anatomy and Physiology*).—†F. J. Nattrass, †Mary L. Haigh, †W. K. Russell, W. Bell, G. A. Berkeley-Cole, A. Butterfield, I. G. Cummings, I. D. Evans, A. C. Freeth, C. S. P. Hamilton, M. H. de J. Harper, E. R. A. Merewether, R. P. Ninnis, Grace W. Pailthorpe, I. M. Pirrie, D. C. Scott, A. Smith, F. B. Robson, S. Thompson.

* First-class honours. † Second-class honours.

UNIVERSITY OF LEEDS.

Annual Report.

The seventh annual report of the University of Leeds, being that for the year 1909-10, refers to a good many points of interest in connexion with medical education.

Women Medical Students.

Satisfaction is expressed with a recent decision of the Board of the Leeds Infirmary, in accordance with which women students will in future be admitted to the practice of the infirmary. As is pointed out, the step taken by the infirmary makes it possible for women to receive the whole of their medical education in Leeds. Inasmuch as there are a considerable number of resident and other post in Leeds which are open to qualified medical women, several being at present filled by women, this is a matter of importance to the city as well as to the university.

Statistics.

The number of medical students on the list was 138, of which it is interesting to note that 55 came from Leeds, 13 from Bradford, 47 from the West Riding County Area, and the remainder in smaller groups from other districts.

The Board of Education and Medical Teaching.

In the report of the council, comment is made on the decision of the Board of Education to recognize the teaching in schools of medicine as a proper subject for their aid, and, consequent on this, on the satisfactory arrangements come to with the teaching staff of the infirmary by means of which all the clinical, as well as the academic, teaching will be brought under the control of the university. In harmony with this it has been possible to appoint a medical and a surgical tutor to supervise the earlier work of the students at the infirmary.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examinations indicated:

SECOND M.B., CH.B.—*Part A (Anatomy and Physiology)*: C. W. Dixon, R. W. Gemmell, H. E. Marsden, W. F. Young. *Part B (Materia Medica)*: L. R. G. de Glanville, H. F. C. de Silva.

FINAL M.B., CH.B.—*Part I*: D. H. Clarke, J. E. Gething. *Part II*: Ethel M. Baker, J. E. Gething, R. Heald, E. W. Moore. *Part III*: J. Bamforth, T. C. Clarke, *P. Lé F. Nortjé.

* Second-class honours.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examinations indicated:

FIRST M.B., CH.B. (*Part I, Inorganic Chemistry and Physics*).—H. W. Bennett, C. P. Brentnall, R. Chevassut, J. S. Chorlton, E. Granger, J. Rigby, C. G. Todd, F. Vause, B. Walley, R. Willan.

FIRST M.B., CH.B. (*Part II, Biology*).—H. W. Bennett, C. P. Brentnall, J. E. Brooks, R. Chevassut, E. Granger, A. Haworth, K. G. Haworth, J. B. Leigh, J. F. C. O'Meara, J. Rigby, J. R. Slack, C. G. Todd, F. Vause, B. Walley, R. Willan, *H. H. Stones.

* Chemistry and Botany.

SECOND M.B., CH.B. (*All Subjects*).—Ada L. Bentz, F. C. Bentz, W. R. Blore, H. N. Crossley, H. C. Duffy, Joseph Fielding, H. S. Gerrard, C. G. Lees, F. G. Prestwich, Gladys H. Ramsden. (*Anatomy only*) R. MacGill. (*Physiology only*) *F. L. Newton, J. F. O'Grady, E. Talbot.

* Distinction in Physiology.

THIRD M.B., CH.B. (*General Pathology and Morbid Anatomy*).—W. Barnes, L. T. Challenor, C. L. Graham, H. Harrison, G. Jackson, A. H. Macklin.

FINAL (*Forensic Medicine and Toxicology*).—C. T. G. Bird, N. Duggan, †W. H. Kauntze, T. W. Martin, N. Matthews, Mabel E. May, †F. Oppenheimer, S. B. Radley, C. M. Stallard, R. P. Stewart, H. D. Willis.

FINAL.—J. F. Cocker, ‡J. Cowan, *E. R. Eatcock, P. S. Green, E. Grey, W. H. Parkinson, A. Reid, J. R. Rigg, J. P. Stallard, G. Whitehead. (*Medicine only*) Mabel E. May, J. B. Scott. (*Obstetrics only*) H. Heathcote.

* Passed with distinction in three subjects and awarded first-class honours.
† Passed with distinction.
‡ Passed with distinction in Obstetrics.

D.P.H. (*Both Parts*).—W. J. Cox, C. M. Craig, D. B. Gilder, W. E. Henderson, R. H. Titcombe, H. M. Williamson, B. M. Wilson.

SOCIETY OF APOTHECARIES OF LONDON.

THE Gillson Scholarship in Pathology has been awarded this year to Dr. H. Letheby Tidy, medical registrar at the London Hospital and physician to the Great Northern Central Hospital.

The following candidates have been approved in the subjects indicated:

SURGERY.—*E. M. E. Hall, *†F. O'Niell, *†A. D. Vernon-Taylor.
MEDICINE.—*A. De Luyck, *†J. Ellison, *†T. T. O'Callaghan, †T. F. O'Mahony.
FORENSIC MEDICINE.—H. R. L. Allott, H. H. Budd, T. T. O'Callaghan.

* Section I. † Section II.

The diploma of the society has been granted to Messrs. H. R. L. Allott, J. Ellison, F. O'Niell, and A. D. Vernon-Taylor.

THE report submitted at the annual meeting of the Catherine Gladstone Free Convalescent Home for the Poor on March 14th showed that during last year a total of 747 patients were admitted, of whom 294 were men, 348 were women, 48 boys, and 57 girls. A greater number of patients were sent to the home direct from hospitals than in any previous year. Some 35 patients were readmitted—that is to say, were allowed to stay three or more weeks after the expiration of the first three weeks, and 392 were discharged quite well and 225 greatly improved. Six patients were sent back to the institution which had sent them, as being too ill for a convalescent home. The surgical work undertaken by the home was successful, only 4 of the 41 patients sent for treatment from St. Thomas's Hospital having been returned. The average weekly expenditure on each patient was 15s. The balance of total expenditure over total income was £217 19s.

Medico-Legal.

WORKMAN'S COMPENSATION.

Failure to give Notice of Accident.

THE case Wright *v.* Soothill Wood Colliery (Dewsbury, March 9th) shows that "notice of accident" is of special importance when the case is one of industrial disease. It appeared that a contracting hurrier was attacked by industrial disease which developed into "beat hand" in May, 1910, and claimed compensation.

His Honour in his judgment, dealing with the points of the defence, thought that the process in which the applicant was employed was "mining" within the meaning of the Order, that the disease of "beat hand" was due to the nature of the employment, and that the applicant was a workman to whom the Act applied. About the beginning of June it seemed that Wright went to Dr. Stewart, who desired to lance the wound a second time; but Wright declined, and although the doctor told him that he was running a serious risk he still persisted in his refusal, and ultimately visited a female "quack" in the district. Later he had to go to the hospital, where three of his fingers were taken off. As to the defence that the present incapacity was due to the man's own unreasonable conduct, he found that the applicant's conduct in not submitting to the second lancing, and also the going to a "quack," was unreasonable. But whether the loss of his fingers was due to that he was unable to say. The onus of proof was on the defence. As to the defence *re* the want of proper notice, he thought that Wright ought to have given some notice before the arrival of the certificate. He therefore found that the notice was not filed as soon as practicable. The main question was whether he could find that the employers were not prejudiced in their defence by the want of notice. He could not so find, for if they had been informed of the disease in May they would have probably called in their own medical adviser and have been able to produce further evidence upon the point of the likelihood of recovery had the patient submitted to Dr. Stewart's further treatment. The result was that no compensation could be awarded.

LIBEL ON A MEDICAL PRACTITIONER.

ELLEN CHAPMAN, the woman charged with having wilfully and maliciously libelled Dr. James Pearse of Trowbridge, as reported in the JOURNAL of March 25th, p. 729, was removed to the prison at Devizes; Dr. Mackay, medical officer of the prison, reported to the Trowbridge Bench on Thursday, March 23rd, that he considered her to be insane. She was formally committed for trial.

FEES FOR MEDICAL ATTENDANCE IN INDIA.

A. A. P.—Fees for medical attendance, etc., recoverable in Indian law courts depend on local usage and on the status of the medical practitioner and position of the patient. These matters are ascertained by the judge by means of evidence, and his decision is given accordingly. There is no authoritative code of rules regarding fees in India; the gold mohur (Rs. 16) has been established and recognized by custom as the basis of ordinary remuneration for a single service, and multiples of it for extraordinary services such as night visits, confinements, operations, etc.; but this basis of charge is subject to very considerable modification according to circumstances. Resort to law courts for the recovery of fees is extremely rare in India.

Medico-Ethical.

The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee, except when so stated.

THE OBLIGATIONS OF A SUBSTITUTE.

F. C. writes: A. buys a practice from B.; C. is another practitioner in the same district who has frequently done B.'s work when he has been ill or away. Naturally many of the patients knowing C. call him in when B. has gone; is it correct for C. to accept them?

*** While it cannot, we believe, be said that a person in C.'s position must refuse to take patients with whom he has become acquainted in the manner described, yet where a practice has been sold owing to a death vacancy or serious illness, when there has been no introduction and the price paid depends upon the receipts, there is a fraternal obligation to give the purchaser a fair chance by recommending old patients to go to him.

Obituary.

THOMAS REID, M.D., LL.D.,

CONSULTING OCULIST TO THE WESTERN INFIRMARY AND THE CHILDREN'S HOSPITAL, GLASGOW.

By the death of Dr. Thomas Reid the medical world of Glasgow loses its oldest and most distinguished ophthalmologist. He was born in Shotts in 1830, and was thus at the time of his death in his 81st year. He pursued his medical studies at Glasgow University, and graduated M.D. in 1857. Previous to his study of medicine he had for some years been trained as an engineer, and the mechanical dexterity obtained in this way stood him in good stead during later life.

After graduating he commenced practice in Glasgow, but soon became warmly interested in ophthalmology. After being in general practice for over ten years he joined the staff of the Eye Infirmary, and thereafter gradually devoted himself more and more to eye work and withdrew from general practice. He was essentially a broad-minded man, deeply interested in all scientific matters, and though eye work became his special subject he was ever alive to the wider claims of science and never restricted his studies within the narrow limits of one branch of medicine. Thus, in the early days of microscopic research, Dr. Reid did work which was little short of marvellous considering the poor facilities and defective apparatus at his disposal.

His work with the microscope brought him into touch with Professor Allen Thompson, a connexion which proved valuable when, on the death of Dr. Rainy, the Waltonian Medical Lectureship fell vacant. At the instigation of Professor Thompson, Reid applied for and was appointed to the vacant post. The Waltonian Lectureship was founded at the end of the eighteenth century, and the lecturer is required to take for his subject that branch of medicine or science connected with medicine which may be assigned to him by the governing body of the university. From its inception the lectureship has been utilized to teach important subjects not otherwise provided in the medical schools. Thus in turn it provided for lectures in midwifery and materia medica before the foundation of systematic chairs in these subjects. From 1831 the lectureship had been devoted to ophthalmology, a subject not then compulsory in the medical curriculum. For twenty-seven years Dr. Wm. McKenzie had lectured on ophthalmology, and in 1871 Dr. Reid took up McKenzie's work. He continued to hold the lectureship till 1900, when he resigned it on retiring from active hospital work. During this long tenure, Dr. Reid, though never attracting large classes, carried on the teaching of ophthalmology with great success. His enthusiasm and his scientific manner of discussing varied problems made his lectures interesting, and as he had as a rule only a select number of students, representing the very best type, he was able to discuss points of interest in an exhaustive fashion.

Apart from his teaching work, Dr. Reid was keenly interested in many other aspects of scientific work. He was one of those who gave financial assistance to the Millport Marine Biological Station. He was ever deeply interested in histology. His work on the anatomy of the special sense organs is well known, and in later years he became a thorough master of the art of microphotography. For a series of photomicrographs which he exhibited at a congress in the University of Turin he was awarded a gold medal. Though he contributed many articles to the medical journals, Dr. Reid never did himself full justice in this respect. He was interested in research for its own sake, and therefore, unfortunately, much of his work will have no permanent record.

One of the old type of medical men, Dr. Reid filled a somewhat unique position in local medical circles. An unassuming man, he never took a prominent place in society, but by a large circle of intimate friends he was appreciated and honoured, not only for his great scientific attainments, but also for his character and lovableness. Among the well-deserved honours which he received was that of LL.D. from his Alma Mater, conferred on him in 1896. In 1908 the King of Italy made him Commendatore of the high Order of the Crown of Italy.

WILLIAM PALEY, M.D., J.P.,

PHYSICIAN EXTRAORDINARY, PETERBOROUGH INFIRMARY.

DR. WILLIAM PALEY, formerly of Peterborough, died on March 13th at Ealing, where he had lived with one of his married daughters since 1903. He was in the 95th year of his age, but retained his mental abilities and active outdoor habits until within a few weeks of his death. Born in 1816, Dr. Paley received his medical education at the London Hospital, becoming M.R.C.S. in 1839 and M.D. Lond. in 1842. With Peterborough, where he established himself soon after this date, he had an hereditary connexion, his grandfather, the author of the famous *Evidences of Christianity*, having been born in that city. Originally joining the infirmary as a house-surgeon, Dr. Paley was appointed Physician to it in 1846, held office as such for over thirty years, and then remained connected with it as Extraordinary Physician for an almost equally long period. Professional success came to him early. His own practice was large, and for many years he was in constant request throughout the Fen country as a consultant in medical cases. During the latter part of his professional career Dr. Paley associated with himself his eldest son, and it was on the death of the latter that he finally retired from practice. As a citizen Dr. Paley was equally successful. When still quite young he was elected to the mayoralty, an office then only of recent creation in Peterborough. He continued to play a prominent part in public affairs until his departure in 1903, an event which was marked by a public presentation to him in acknowledgement of the services he had rendered to the town. A man of strong religious convictions, excellent judgement, abundant nervous energy, and passionately fond of active outdoor exercise, he enjoyed general esteem, and had held office as President of the Cambridge and Huntingdon Branch of the British Medical Association.

His funeral took place at Peterborough on March 16th, and was attended by the Mayor and Corporation, representatives of the Bench, the infirmary, and the medical profession, and by the Bishop of Leicester and other clerics. Dr. Paley was predeceased by his wife and by both his sons.

ARTHUR FRAME JACKSON, B.C., M.B.CANTAB.

A REMARKABLE tribute was paid to the memory of Dr. A. F. Jackson, who died of plague at Mukden on January 25th, by His Eminence Hsi Liang, the Viceroy of the three eastern provinces. Dr. Jackson, who was only 26 years of age, had gone out to China as a medical missionary last September, and was serving at the Mission Hospital, Mukden, when the epidemic broke out. He was educated at the Universities of Cambridge and Liverpool, taking the degrees of B.C. (1908) and M.B. (1909) from the former university, and the diploma of Tropical Medicine from the latter (1910). He had served as House-Surgeon and House-Physician to the Royal Infirmary, Liverpool. The Viceroy's speech was delivered at a solemn memorial service, and although it has already been published in this country we think that it will be interesting to many readers. Even in a translation it retains some of the eloquence which it possessed in its native tongue.

We have shown ourselves unworthy of the trust laid upon us by Our Emperor; we have allowed a dire pestilence to overrun the sacred capital.

His Majesty, the King of Great Britain, shows sympathy with every country when calamity overtakes it; his subject, Dr. Jackson, moved by his Sovereign's spirit, and with the heart of Christ, who died to save the world, responded nobly when we asked him to help our country in its time of need.

He went forth to help us in our fight daily, where the pest lay thickest; in the midst of the groans of the dying, he struggled to cure the stricken, to find medicine to stay the evil.

Worn by his efforts, the pest seized upon him, and took him from us long before his time. Our sorrow is beyond all measure, our grief too deep for words.

Dr. Jackson was a young man of high education and great natural ability. He came to Manchuria with the intention of spreading medical knowledge, and thus conveying untold blessings on the Eastern people. In pursuit of his ideal he was cut down. The Presbyterian Mission has lost a recruit of great promise, the Chinese Government a man who gave his life in his desire to help them.

O, Spirit of Dr. Jackson, we pray you intercede for the 20,000,000 people of Manchuria, and ask the Lord of Heaven to take away this pest so we may once more lay our heads in peace upon our pillows.

In life you were brave; now you are a Spirit, Noble Spirit, who sacrificed your life for us, help us still and look down in kindness upon us all.

THOMAS DOBSON, M.D.

AT the advanced age of 93, there has passed away one of the most respected of the medical men of Leeds in the person of Dr. Thomas Dobson, whose death occurred on March 26th at his residence in Marshall Street, Holbeck, Leeds, where the whole of his long professional life was passed. After the customary pupilage with a practitioner of Leeds, Dobson became a licentiate of the Society of Apothecaries in 1840, subsequently adding to this the Membership of the Royal College of Surgeons of England and the Licentiateship of the Royal College of Physicians of Edinburgh, and then in 1861 proceeding to the degree of M.D. at St. Andrews.

Though Dr. Dobson was a man of many parts, taking a keen interest in public affairs, both political and social, and though he filled many positions of public responsibility, he will be best remembered by his numerous professional and lay friends and by several generations of patients as a medical man of the very best type. His public work embraced such various spheres of activity as the Leeds Town Council, the Holbeck Board of Guardians, the Holbeck Mechanics' Institution—in the foundation of which he was associated with the late Lord Airedale, and of which he was at one time President—and the Leeds and Holbeck Permanent Building Society, of which for many years he was the honorary head.

Dr. Dobson's professional work consisted in the building up and in the maintenance of a large working-class practice. He was a man of the most strenuous activity, and the amount of work he got through in his earlier days would probably surprise even the more diligent of the younger medical men of to-day. He was a man of sterling integrity and always actuated by the highest ideal of professional conduct. Dignified in demeanour, courteous in manner, and kindly in disposition, he was for many years honoured and respected not only by his patients, but by a very large circle of the general public of Leeds.

WE regret to announce the death at the Queen Alexandra Military Hospital, Millbank, after an operation, of Major ARTHUR FREDERICK TYRRELL, Royal Army Medical Corps. Major Tyrrell was born in 1865, and received his medical education at Middlesex Hospital, became L.R.C.P. and M.R.C.S. in 1888. He entered the Army Medical Service in 1892. He served in the North-West Frontier of India campaign in 1897–8, receiving a medal with clasp, and in the South African war in 1900–2, when he was Orderly Officer to the Principal Medical Officer in South Africa; he was present in operations in the Transvaal, was mentioned in dispatches, made Brevet Major (1902), and granted the Queen's medal with four clasps and the King's medal with two clasps.

Public Health
AND
POOR LAW MEDICAL SERVICES.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Heston and Isleworth Urban District.—Based upon an estimated population of 36,311 persons, the birth-rate in 1910 was 30.8 per 1,000 of the population, the death-rate from all causes 14.0 per 1,000, and the infantile mortality-rate was 106 per 1,000 births. The medical officer of health, Dr. G. F. Buchan, considers that the latter death-rate is capable of being considerably reduced, and he records with satisfaction the decision of the council to appoint a lady health visitor, who, he considers, ought to exert a beneficial influence in reducing the number of infantile deaths. The council has decided to promote a bill in the Parliamentary Session of 1912 to enlarge its powers with regard to the local government of the district. Dr. Buchan has included in his report suggestions as to powers it is desirable should be obtained in connexion with sanitary matters. He advises the inclusion in the bill of the model milk clauses, of provisions relating to the manufacture of ice-cream, to the licensing of slaughter houses and of common lodging houses, with regard to the registration and regulation of hairdressers' establishments, and for other purposes.

St. Anne's-on-the-Sea Urban District.—The medical officer of health, Dr. F. Booth, has estimated the population of St. Anne's-on-the-Sea at the middle of 1910 at 11,033. This estimate is not calculated in the usual manner on the assumption that the annual increase in the current decade is the same as that which prevailed in the previous ten years, but upon the number of inhabited houses in the district. The birth-rate during 1910 was 11.7 per 1,000 of the population, the death-rate from all causes 7.8 per 1,000 and the infantile mortality-rate equal to 69 per 1,000 births. Measles is compulsorily notifiable in the urban district. It would have been of interest to have had Dr. Booth's opinion as to the advantages or otherwise which he has found to follow this course. Presumably he is satisfied with it, for he advocates the compulsory notification of phthisis. Six cases of typhoid fever occurred during the year, some of which were associated with the consumption of cockles. The veterinary inspector and Dr. Booth have distributed among the dairy farmers of the district a card on which are printed suggestions for the management of dairies, cattle, etc., on up-to-date lines. The inclusion in the report of a copy of the card would have added considerably to its value.

Medical News.

THE Hunterian Society on March 22nd awarded its medal to Dr. Davenport Windle for an essay on abnormal forms of breathing associated with pulsus alternans and angina pectoris.

UNDER the will of the late Mr. James Archibald Duncan, at one time member of Parliament for Barrow-in-Furness, Perth New Infirmary receives the sum of £500.

THE King has been graciously pleased to accede to a request by the Committee of Management that the two central Ward Blocks of the new King's College Hospital at Denmark Hill should be named the King Edward VII Block and the King George V Block.

THE Bakerian Lecture before the Royal Society will be given by Professor the Hon. R. J. Strutt, F.R.S., on Thursday next, at 4.30 p.m. The lecture, which will describe a chemically active modification of nitrogen produced by electric discharge, will be illustrated by experiments.

AT a meeting of the council of the Hospital Sunday Fund for London on March 28th the question was considered whether the Fund should tacitly approve of certain hospitals, to which it customarily makes awards, participating in the proceeds of cinematograph entertainments on Sundays. Eventually the council adopted a resolution to the effect that in the event of it being found that the Fund suffered from the practice in question, the Distribution Committee should take this fact into consideration in making awards to the hospitals concerned.

A MEETING of the Organizing Committee of the Seventeenth International Congress of Medicine, to be held in London in 1913, was held at the Royal College of Physicians on Wednesday afternoon under the presidency of Sir Thomas Barlow. It was settled that the opening session of the Congress should take place on Wednesday, August 6th, and the closing session on the afternoon of Tuesday, August 12th, 1913. The date of opening had, it appeared, been to some extent determined by the fact that August 4th will be a Bank Holiday in England. Various matters with regard to the arrangements of sections were considered, and it was determined that an exhibition of medical and surgical appliances should be held.

THE usual monthly meeting of the Executive Committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on March 17th, 1911, Dr. de Havilland Hall in the chair. The accounts presented showed that the business of the society during the first three months of this year had been exceptionally good. These months always produce a large number of sickness claims; and a considerable number of applications had been received; but for the most part the illnesses were of unusually short duration, and the total amount of sickness pay disbursed had been below the average expectation, and therefore much under the amount anticipated. Since January 1st a greater number of new proposals had been received than in any previous period of equal length since the society first started operations in 1884. As no commission is paid and no expenditure incurred for advertisement, this seems to show that the growth of the society is quite natural, and may be expected to continue. Another very gratifying fact is the large increase in the number of those members who avail themselves of the recent alterations in the rules to increase the amount of sick benefit they have previously secured. In 1910 the number of such increases was greater than in any previous year. These increases, generally to £6 6s. or £8 8s. per week, are, of course, accompanied by a solid increase in contributions. Prospectuses and all further particulars on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery Lane, London, W.C.

Letters, Notes, and Answers.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* British Medical Journal *are devoted will be found under their respective headings.*

QUERIES.

D. asks for advice as to the treatment of extremely painful feet in a lady aged 44, otherwise healthy. She is not flat-footed; there are no physical signs of any abnormality.

Treatment of Prostatic Urethritis.

Inquirer asks for the experience of other practitioners in the treatment of prostatic urethritis where saturated solutions of tannic acid have been tried, and whether any complications (vesiculitis, blood poisoning, or abscesses of the follicles of the prostate gland) have followed such applications, by the tannin uniting with the albumen and forming an insoluble albuminate and so blocking up the ejaculatory and prostatic ducts. He has never seen tannic acid used stronger than ℥ss ad ℥j.

Rescue Work in Mines.

Rescue asks to be referred to textbooks or monographs on rescue work in mines giving technical details of the apparatus employed and directions for training of rescue parties.

*** A full description of the chief forms of rescue apparatus, with illustrations, will be found in the First Report of the Royal Commission on Mines (Parliamentary Paper Cd. 3548, 1907, price 1s. 3d.). Directions for the organization and training of rescue parties and the conduct of rescue operations will be found in Appendices to the Second Report of the Commission (Cd. 4820, 1909, price 3s. 6d.).

Astigmatism and Intolerance of Mydriatics.

Exile writes that a lady examined five years ago by an ophthalmic surgeon without the use of atropine now requires alteration in her glasses for hypermetropic astigmatism; she suffers from constant headaches, and is extremely intolerant of atropine, the instillation of a few drops being followed within twenty-four hours by headache, palpitation, frequent pulse, and nervous excitement; homatropine has very similar results. Retinoscopy attempted under these circumstances showed much spasm of accommodation. He asks how correction is to be arrived at.

*** As our correspondent resides in a remote part of the empire, we have referred his inquiry to Mr. Devereux Marshall, who advises as follows: Such a case is extremely difficult to treat, and it may not be possible to correct the refraction satisfactorily without a mydriatic. An attempt should be made to do a retinoscopy even without a mydriatic if that causes such unpleasant symptoms. Whether a good result will be obtained or not is doubtful, though it is quite possible that an expert might be able to get at the truth even under unfavourable conditions. Such a case is very hard on any surgeon who is not constantly doing refraction work. There is not, unfortunately, any easy way in which to treat such a case, and nothing but care and attention at the hands of a skilled ophthalmologist is likely to overcome the difficulty. It is not probable that matters would be assisted by any of the complicated instruments which are frequently sold. Possibly the extrinsic muscles of the eye may be at fault, and these should be investigated, though it is a long and complicated process.

ANSWERS.

In reply to "Dublin," who asks for information as to a preparation of iron suitable for injection, we would suggest the green ammonio-citrate of iron in half-grain doses.

Dr. H. J. Thorp (Ipswich) recommends "W. J. L." to try in treatment of epilepsy: ℞ Pot. iodi., ℥ij; pot. brom., ℥j; am. brom., ℥iij; am. carb., ℥j; tr. calumb., ℥j; aqua ad. ℥vj M.Ft.mist. One teaspoonful before each meal, and three teaspoonfuls at bedtime. If *petit mal* exists alone, or coexists with complete epilepsy, the dose of am. brom. must be larger and that of the other diminished. If the epilepsy depend on some visceral affection, the treatment should be directed against that affection. There should be no cessation whatever in these remedies for two years after the date of the last attack, not even for a few days.

Drosera (Sundew).

H. L.—Drosera (*Drosera rotundifolia*, sundew) and a tincture made from the whole plant (1 in 5) are official in the French Pharmacopoeia (1908). The plant yields (*National Standard Dispensatory*, 1905) a greenish brown, odorous, very acrid resin, glucose, citric and probably malic acid, and a ferment which converts albumen into peptone. It is added that "sundew has been recommended in the treatment of chronic bronchitis, whooping-cough, and tuberculosis, but probably has no medicinal value in these conditions." The dose is stated to be 5 minims of a 10 per cent. tincture. Our correspondent has heard that the preparation is in Norway regarded as a specific for whooping-cough, and asks if any British practitioners have had experience of the drug.

LETTERS, NOTES, ETC.

Deaths under Salvarsan.

Major H. C. French, R.A.M.C., writing from Malta, states that he was recently informed by a visitor from Cairo that a Syrian in that city had died suddenly four hours after receiving an injection of salvarsan. Major French states that fifteen other deaths after the use of this drug have already been reported, and asks whether our readers know of any other fatalities. He quotes Dr. Lieven of Aix-la-Chapelle, who stated after a visit to Berlin that "there were 30 to 40 per cent. of relapses in the first three to five months—roseola, mucous patches, etc. The roseola took a long time to disappear." Major French observes that it is desirable that in cases of death the dose should be stated. He adds that in Berlin a good many cases of necrosis have been observed after hypodermic injection, and that Dr. Lieven had stated that a claim for damages had been made in consequence of those sequelae. Major French concludes as follows: "Syphilis, unlike cancer or sleeping sickness, is not a fatal disease, and when safer, cheaper, and infinitely better remedies, which have stood the test of centuries and are conclusively supported by recent modern research, lie ready to our hand, the practice of getting the patient's consent in writing before employing salvarsan appears to be a wise precaution."

Pernicious Anaemia Treated by Salvarsan.

Dr. W. Ringrose Gore (Llandrindod Wells) writes: The article by Dr. Byrom Bramwell (Journal, March 11th, p. 547) on the treatment of pernicious anaemia by the injection of salvarsan is of peculiar interest in view of the suggestion that has been made that it is a trypanosome disease. The primary improvement and later toleration to arsenic is with the general course of the disease most suggestive of this cause.

A Disclaimer and an Explanation.

Mr. Frederick Dixon (Office of District Manager of the Christian Science Committees on Publication for Great Britain and Ireland) writes, in reply to Mr. Stephen Paget's disclaimer, published in the Journal of March 25th, p. 732, to the effect that he had occasion to refer to Mr. Paget's remarks on Christian Science owing to his name being dragged into the *Saturday Review* by an anonymous writer. Later, he says, he had occasion to refer to certain remarks by Dr. Page on appendicitis, and the typesetter, evidently becoming mixed between Mr. Paget and Dr. Page, produced the latter's name as Dr. Paget.

To Masons.

The Editor has received from a correspondent three votes for boys at the election to the Royal Masonic Institution for Boys and one vote for a girl at the corresponding institution for girls. The forms do not indicate whether any of the candidates are connected with the medical profession.

Dr. William Wilson (Secretary, St. Luke's Medical Lodge of Instruction, 184, Goldhawk Road, W.), writes: May I once again, through the medium of your widely-read columns, appeal to medical men, and medical Freemasons in particular, for votes for the Masonic charities. At the forthcoming elections there are four medical candidates. Votes for any of the Masonic institutions are equally valuable, as exchanges can be affected, and will be gratefully receive and acknowledged by me.

Beggars amongst Medicos.

A Correspondent who describes himself as a member of the British Medical Association, Medical Defence Union, and Medical Sickness Assurance Society, writes: Men who do not attempt to insure against death and sickness are acting selfishly in relation to those dependent on them. Some of us have paid hundreds of pounds, which have gone to help other unselfish insurers, as we have not needed any help ourselves. This is the just answer to the begging letters which at intervals come round.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Eight lines and under	0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

Note.—It is against the rules of the Post Office to receive *postes Restante* letters addressed either in initials or numbers